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DECEMBER, 1935

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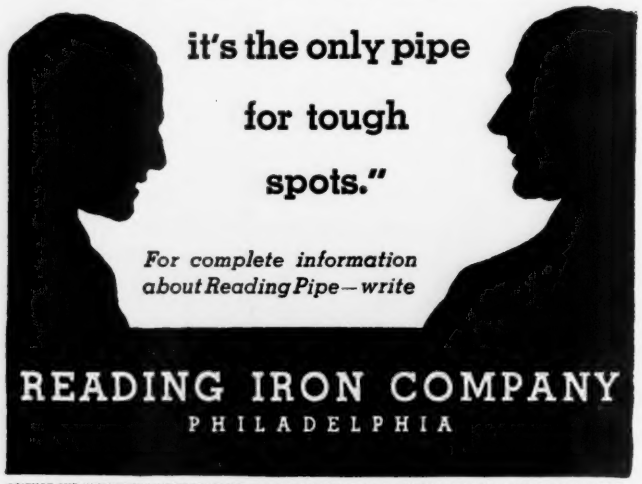

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THE AMERICAN ENGINEER

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AN INTEGRATED PROFESSION

Public and Personal Interest Served

The American Bar Association Proposal

Merits Emulation by Engineer

THE November issue of the American Engineer carried a news item wherein President William L. Ransome of the American Bar Association predicted that all lawyers would be compelled eventually, either by legislative act or court ruling, to become members of their respective state Bar Associations "whether they liked it or not."

Mr. Ransome pointed out that what he terms "integrated bars" are already in existence in seventeen states. In such states every lawyer must be a member of the Bar Association of his particular commonwealth. "He must be amenable to its discipline and subject to the consensus of opinion of the organized legal profession as ascertainable through such state organization."

A most significant statement which merits the consideration of engineers is the following:

> *"The concept of the lawyer as the representative of private interests is changing. An increasing number of lawyers are engaged professionally in public office and on behalf of the public interest. There are important questions ahead of the country which need the guidance of the whole bar and not of a minority."*

For years proponents of engineering registration have had to contend against criticisms from within the profession. When advocates pointed out the advantages, both public and professional, resulting from the licensing of lawyers and doctors, one platitude was always invoked by the opposition: "The lawyer and the doctor deal with the needs of individuals whereas the services the engineer renders are, more or less, of a public nature; consequently the professions cannot be compared." Aside from venturing the opinion that those offering this argument either miss the purpose of licensing or deliberately place personal interest above public welfare, one feels safe in predicting that despite the changing concept referred to there will be no reduction in restrictions and safeguards concerning the practice of law. Standards of practice and the enforcement of licensing acts will receive more consideration from lawyers than ever before.

That there will be opposition to the proposal of the President of the American Bar Association upon the part of some lawyers is to be expected. However, the fact that seventeen states have already accepted the integrated bar is significant, for the reason that the legal profession as a whole has always indicated its ability to rise to the occasion when the general welfare was at stake. President Ransome has clearly pointed out that the lawyer is becoming more and more an employee concerned with the public service. This being the case the lawyer and the engineer now have similar social responsibilities. Can the latter afford to be less public spirited and public minded than his legal brother?

Engineers as a whole, including many of the most ardent advocates of registration, all too often forget that the public welfare is paramount to professional recognition. No major activity of any professional society merits support unless it has as its objective the promotion of the common good of society. The proponents of an integrated bar appreciate this and the success of their endeavor depends upon the creation of a public as well as a professional sentiment in favor of the proposal. The case of the engineer parallels that of the lawyer. Both must place the public well-being above professional advantage if the individual interest is to be served generally and effectively.

The National Society of Professional Engineers, through its member associations, should strive for legislation which would make the development of high professional standards of character and qualification, and the creation and enforcement of codes of ethics and practice, the functions of recognized state professional societies. Professional practice, the recognition of schools, the scope of examinations, the recommendation of personnel for Examining Boards and co-operation in the prosecution of offenders should become major functions of an integrated professional association.

The engineering profession in Canada has long since pointed the way,—the legal fraternity in the United States offers a new stimulus. Let us give thought to this forward looking proposal.

PUBLICITY FOR THE ENGINEER

Public Relations Committee Reports

Recommends Active Participation in Public Affairs

By
H. E. BABBITT, *Chairman*

PUBLICITY of a favorable nature is the principal aim of this Committee. It has been secured through various sources, such as:

Articles appearing in the American Engineer.

Newspaper publicity of correspondence concerning the title of "engineer," such as the series of articles on the editorial page of the Chicago Tribune, in June.

Publicity attendant upon campaigns for registration in many states.

Publicity attendant upon appeals to members of Congress for the creation of a Federal Department of Public Works.

Publicity attendant upon appeals to bureaucrats and members of Congress urging the employment of engineers in planning and executing made-work projects.

Publicity attendant upon the results of our efforts to persuade the United States Department of Labor to reclassify occupational terminology so that the term "engineer" might be used properly.

Publicity attendant upon the activity of railroad executives to influence the use of the term engineman rather than engineer in referring to a locomotive operator.

Publicity attendant upon the active participation in public affairs by Chapters of this Society.

To attempt to list, in detail, all of the accomplishments in this connection during the ten months of the Society's existence would be puerile, futile and boresome. A few illustrative examples of the many accomplishments along these lines will be included in this report for the purpose of emphasis and support of the record:

Favorable publicity; an increase of respect for the profession; recognition of the place of the engineer in public affairs; and other objectives have been approached or attained through:

The drawing of the attention of governmental bureaucrats to unprofessional practices in certain bureaus of the Federal Government where plans submitted by designing and consulting engineers have been altered on projects where the Government was the client.

The activities of committees of the Society in many states in drawing the attention of legislators to the need for the registration of professional engineers, and other problems in connection with the recognition of the engineering profession.

The activities of the Lake County Chapter in Illinois in connection with the prevention of erosion along the shore of Lake Michigan. The work of this organization has attracted much public attention to the engineering organization.

The activities of the Madison-St. Clair County Chapter in Illinois in connection with the construction of a drainage ditch in East St. Louis and the construction of a union station.

Through the activities of many state societies and county chapters in attempting to block the diversion of gas taxes.

Through the publicity attendant upon the promotion of bills beneficial to the public welfare by State Senator Desmond of New York; the sole representative of the engineering profession in the New York State Legislature.

Through the influential work of the New York County Chapter in connection with the Mortgage Committee and in engineering for governmental projects.

Through the practice at meetings of the Westchester County, New York, Chapter meetings of holding open debates upon subjects of public interest which attract not only attendance by the public but reports in the public press.

Through the activities of a committee of the Bronx County, New York, Chapter, which has co-operated with the Board of Trade in the preparation of the plans for a Prosperity and Better Housing Exposition. The Chapter also brought the attention of officials of the H. O. L. C. to the fact that engineers and architects are on the same footing, legally, in the making and filing of plans.

Through the activities of the King's County, New York, Chapter in publishing an exhaustive report on the Long Island Ten Year Plan. This report has attracted the favorable attention of railroad executives, port authorities, and other interested organizations and officials.

Through the activities of the Richmond County, New York, Chapter which is jubilant at the final success of their long advocated plan for the construction of the Staten Island Rapid Transit Tunnel.

Through the action of County Chapters in New Jersey which have petitioned the Governor individually requesting him to appoint engineers on those state boards requiring the services of an engineer.

Through the publicity resulting from the newspaper announcements of the State Board of Examiners in Oregon, relative to the employment of professional engineers. The effect has been a prompt and favorable response from the public.

Through the publicity resultant from the successful attempt to secure legal registration for engineers in the State of Washington. Their success has brought quick public recognition of the importance and dignity of the profession.

Through the regular publicity secured in Passaic County, New Jersey, in connection with the Chapter meetings.

(*Continued on page* 25)

THE CORPS OF ENGINEERS

Organization and Activities

Merit Greater Recognition from Public and Profession

By
LESTER F. RHODES

THERE are in round numbers about 12,000 officers in the American Army. These are assigned to the various branches, such as the Infantry, Artillery, Cavalry, Air Corps, Quartermaster, Signal Corps with approximately 600 officers comprising the Corps of Engineers. Of these 600, about 230 officers are engaged in duties connected with civil works. Frequent changes in assignments are made so that an individual officer has opportunities to serve in both military and civil capacities. Four years is the normal period of detail and it is required that at least one year in five be spent with troops, although to meet this requirement, exigencies of the service sometimes make it necessary to assign individuals to nominal troop duty requiring but a small percentage of their time.

These 200 or more Engineer officers of the regular Army, supervise the various activities of the Engineer Department. The designation "Engineer Department" is a comprehensive term, including, as to personnel, both the officers of the Corps of Engineers engaged on civil duties, and the many thousands of civil service and unclassified employees of the Department. Contrary to popular belief, there are no enlisted personnel used in civil works of the Engineer Department.

Let us outline briefly the varied activities of this department, or as it is referred to, the Army Engineers. A bit of history might be interesting as well as correct a popular impression that our public works represents a "New Deal" innovation. Approximately 100 years ago, Congress first appropriated funds for the improvement of our rivers and harbors and the duty of directing this work was assigned to the Corps of Engineers. Of course, previous to this, sea coast fortification and mapping operations had occupied the attention of the Corps.

I believe I am correct in stating that at that time, the early 19th century, there were no schools in this country offering engineering courses except the United States Military Academy at West Point. The latter was established in 1802, primarily as a school for engineers and artilleryists. During the period of westward expansion, canal construction and railroad building, engineers were few and their services much in demand. Military engineers assumed many civil tasks as might be illustrated by some of the works which were directed by them. For instance, it might be news to some that Army engineers built and managed the original Baltimore & Ohio Railroad, constructed the first divisions of the New York Central as well as several other railroads including the first rail lines of Russia. Later, many of the public buildings in Washington were built by the Corps including such well known structures as the Washington Monument and Congressional Library. These activities of course were in addition to their normal functions in charge of the improvement of our rivers and harbors.

Other duties have been gradually assigned to the Corps until at the present time, these are many and varied. In most cases, of course, these activities are directly or indirectly connected with rivers and harbors and flood control, although there are such miscellaneous assignments as beach erosion and shore protection investigation, National Capitol Park and Planning Commission, Governor of Panama Canal Zone, supervision of fish traps in certain localities, various international commissions such as the Niagara Control Board, supervision of private power developments on international streams, field representatives for the Federal Power Commission, American Battle Monuments Commission in France, charge of Washington water supply system, P. W. A. Administrator of Hawaii and Puerto Rico, several professorships at West Point, Engineer Reproduction Plant where army maps, recruiting posters and other lithographic work is done, regulation of hydraulic gold mining operations in California; one of the three commissioners of the District of Columbia is appointed from the Engineer Corps, superintendent of construction and maintenance at the White House and other miscellaneous assignments. Other responsibilities have been recently terminated or transferred to other agencies such as the Muscle Shoals power development, Alaskan Railroads, supervision of public buildings and public parks in the National Capitol, member of Federal Power Commission, economic and public works advisor to the Turkish Government, assistant to Mr. Ickes, as deputy administrator of Public Works, etc.

As I have stated, these assignments are in addition to the primary duty of river and harbor improvements and flood control. It might be of interest to explain briefly how these works are authorized and initiated. In former years, there was considerable criticism of so-called political "log-rolling" for the adoption of river and harbor projects of doubtful justification. This condition has long since been corrected by Congress itself, by the requirement that all projects must receive the approval of the Chief of Engineers before adoption by Congress. The effectiveness of this arrangement is still further increased by Congress passing a lump sum appropriation with allocation of these funds to previously authorized projects, left to the discretion of the Chief of Engineers.

Just previous to the recent expansion of Public Works, this lump sum appropriation varied from about $60,000,000 to $100,000,000 annually. In the past six or seven years, the Mississippi River Flood Control work and the allocation of P. W. A. and Emergency funds to the War Department has increased annual expenditures to a peak of nearly $400,000,000. In its record of over 100 years in the expenditures of hun-

dreds of millions of public funds, the Corps of Engineers might well be proud of the results attained both in efficiency and honesty. As to the latter, there has been but a single instance of misapplication of public funds and even in this case there was some doubt as to whether criminality was involved or not.

The Engineer Department is divided geographically into forty-five districts, the boundaries coinciding with watershed divides. These are in turn grouped under ten divisions. In this vicinity there are District Engineer offices in New York City, having jurisdiction over the Hudson River watershed; one at Philadelphia, over the Delaware; the Susquehanna and tributaries are allocated to the Baltimore office and the Buffalo District has jurisdiction over those streams emptying into Lake Ontario and the eastern portion of Lake Erie.

It is therefore evident that the recent flood in this area involved river systems located in these four distracts, which in themselves, are in three divisions. This situation was met in the Present Flood Control Survey by assigning the entire affected area to the New York office for purposes of the current program.

Flood control activities by the Federal Government, originated many years ago, on the Mississippi River. Although considerable work had already been done by local interests, particularly in the vicinity of New Orleans where the first levees were built in 1717, it soon became evident that the job was too big for even the states to handle. Also, there were so many factors and opposing interests involved, that inter-state jurisdiction was necessary to compose these divergent interests and coordinate the work.

Consequently, the Federal Government initiated its first flood control program on this river in 1879, under the Mississippi River Commission. This board is chairmanned by an Army engineer, with local interests represented by several civilian members appointed to the Commission. Thus was established a policy that such work was a national affair. Incidentally, I imagine some of you gentlemen are acquainted with the early hydraulic studies of Humphrey and Abbott, two Army engineers, on this stream. These investigations were carried on nearly a hundred years ago, when little or no information existed on the flow of water in river channels.

Needless to say, the problems involved in attempting to control the waters of this mighty river are of almost overwhelming magnitude. The destructive power of even our smaller streams, when on a rampage, can impress even the most casual, and there have been instances of men getting religion through merely watching Old Man River in an angry mood.

Nature is always resentful of interference and this fact is well exemplified in any flood preventive works. For untold centuries, nature allowed the lower Mississippi to spread out over flood plains many miles in width almost every year. Man has occupied these alluvial valleys and now demands that the river be confined to a narrow channel.

Until the disastrous flood of 1927, preventive measures on the Mississippi consisted almost entirely of levees. As a result of the great 1927 flood, the entire question of protective measures for this stream was thoroughly investigated and as a result, the so-called Jadwin or Adopted Plan was evolved. General Jadwin was then Chief of Engineers.

I wish that time would permit a more detailed discussion of the issues involved when the Jadwin Plan was presented to Congress. It was surprising how many people—engineers, doctors, lawyers, housewives, Mr. Average Citizen, and the usual crackpot—had positive ideas or elaborate plans as to how the Mississippi should be controlled. Some of these schemes had merit, the question reducing to one of comparative cost to accomplish the same result. On the other hand, many ideas were patently impractical or downright asinine. I remember one man paid his own fare all the way to Washington to present a sure-fire scheme which proposed the digging of a huge tunnel directly beneath the bed of the river for its 1,000 or more miles of length. Then, when the flood came along, a lever was pulled, opening trap doors in the river bed and, presto! your flood disappeared "down the hatch."

The more serious proposals usually included the use of tributary reservoirs. An entirely feasable plan, but in general economically unsound. It is obvious to engineers that the hydraulic problems involved in the analysis of the run-off for a drainage system involving half the United States, would be tremendous. However, in most cases, headwater reservoir proponents failed to trace out quantitatively, the effect of these reservoirs on Mississippi River stages. Often I have seen a proposed system of reservoirs on the tributaries of the Ohio or Missouri, costing perhaps, fifty million dollars, produce a calculated reduction in flood gage heights at Cairo, of but a few inches. It must be remembered that the danger period on the lower Mississippi is of some six weeks duration, lasting until the latter part of May each year. When the elapsed time of concentration of run-off from remote tributaries is considered, it is usually found that such headwater reservoirs are unsuited for the dual function of controlling local floods and still store water at a time beneficial to Mississippi stages. This, of course, does not apply to the lower valley tributaries such as the Red, Arkansas and White Rivers. The question is one of economics, it being obviously unwarranted to provide flood control facilities, the capital charges on which exceed the average annual damages these structures are designed to prevent. In attempts to economically justify certain reservoir schemes, non-technical proponents paint glowing pictures of the value of waterpower which could be developed at these sites. The fallacies involved here are probably apparent to all of you, but I shall devote a few remarks to this subject later.

The Jadwin plan, as adopted in 1928, proposes the raising of existing levees giving a three-foot freeboard above the highest flood of record, that of 1927, and one foot above the maximum anticipated flood. In addition to higher and stronger levees, the Adopted Plan provides for certain floodways running parallel to the river, through which a part of unusually high flood waters will flow. The floodways will come into use only when the flood is so great that not all of the water can be carried safely between the levees along the main river channel, and there is consequently grave danger that the levees will be overtopped and broken.

The three chief floodways are the Bird's Point-New Madrid Floodway, running from Cairo, Illinois, to New Madrid, Missouri, a distance of approximately thirty-seven miles; the Boeuf Floodway extending from the mouth of the Arkansas River to the mouth of the Red; and the Atchafalaya Floodway from the mouth of the Red to the Gulf of Mexico. At the upper end of these

floodways the crest of the levee is built to reduced grade. It is planned that these low sections will be topped and breached before the standard sections are endangered. For this reason, these floodway inlet sections are known as "fuse plug" levees. Guide levees are provided along one or both sides of the floodways, with channels built to intercept side drainage. In addition to these floodways, the Bonnet Carre Spillway has been constructed just above the City of New Orleans. This consists of concrete control gates whereby a portion of the flood waters may be diverted into Lake Ponchatrain when flood stages at New Orleans approach the danger point.

In conjunction with the adopted plan, extensive studies are being carried out as to the efficacy of certain reservoirs, mostly on the lower tributaries. At least thirteen such sites have been tentatively selected as holding promise in alleviating both local and mainstream floods. These studies are still in progress. The issues and opposing interests are tremendously involved, particularly, with respect to flowage rights. It seems as soon as the Federal Government proposes a project, any swamp land needed in connection therewith, immediately jumps in value from perhaps a few cents to many dollars.

In 1928, Congress authorized expenditures of $325,000,000 of which about $272,000,000 has already been appropriated, and the work is approximately eighty per cent complete. A portion of these funds was also used in channel betterments and bank protection. The latter represents an extensive subject in itself.

Until the recently inaugurated P. W. A. and Emergency Act programs, the Mississippi River work represented the only active flood control projects by the Federal Government. Since 1933, several major developments have been initiated, using emergency funds.

Before presenting the highlights of these projects, it might be well to touch upon the so-called "308" studies and reports, on which most of these flood-control projects were based. In 1927-28 Congress authorized the expenditure of approximately $15,000,000 for a comprehensive study of important rivers throughout the country, as listed in House Document 308, in the interests of waterpower, navigation, irrigation and flood control, with a view to preparing long-time plans for the utilization of our water resources in the most advantageous manner. This required an extensive organization.

The studies were started in 1928 and at present are nearing completion. Over 200 river systems were included in the program, including such major streams as the Missouri and Tennessee. Some 180 of these reports have been printed and are available for public distribution. In many cases due to the voluminous material, only the main body of the report has been published, although the more detailed appendices are available for reference by private parties at District Engineer offices. I mention this with the idea that occasion may arise when you, individually, may find the very extensive data contained in these reports pertinent and valuable to your own problems.

The subject matter is, in a sense, an encyclopedia of original and assembled data on our water resources; their use and control. In addition, each report attempts to present a so-called "Best Plan," for the eventual comprehensive development of the stream in question, with an effort to coordinate to the best advantage, the various interests involved. The primary consideration with respect to water use depends, of course, upon the particular river. On the Columbia, it may be waterpower; on the upper Ohio or the Monongahela, navigation; on the Yellowstone it may be irrigation; the Arkansas presents major flood-control problems; while water supply assumes an important role on the Delaware. However, all phases of water usage are covered to the extent justified by their relative importance in each report.

In this connection, I might mention that just prior to my assignment to the present survey, it was my duty, in charge of the planning section of the Office of the Chief of Engineers, to review these "308" reports and to summarize the voluminous information contained therein. For instance, I recall that more or less complete studies were available on 2,500 potential waterpower sites. Information is presented on something over 12,000 individual proposed projects.

These "308" studies became invaluable at the inception of the recently expanded Works Relief Program and in addition to the Corps of Engineers, many agencies drew upon these sources for supporting data in connection with many studies and proposed projects. For instance, much of the work, particularly, waterpower development by the Tennessee Valley Authority, is based directly upon studies and plans contained in Tennessee River "308" report.

Nearly all flood-control projects now under construction by the War Department are predicated on plans outlined in these "308" reports. You might be interested in the principal features of some of these projects. In addition to these recently compiled "308" reports, there have been literally thousands of studies in connection with preliminary examination and survey reports on a great portion of our river systems. These were made in connection with proposed or executed waterway improvements covering a period of many years. The field work necessary in our present Flood Control Survey has been materially reduced by our being able to draw upon these prior investigations by the War Department as well as other public and private agencies.

I shall discuss briefly some of the more important flood-control projects under construction by the War Department:

Winooski River

The Winooski River flows into Lake Champlain in the northern part of Vermont. As a result of the unprecedented flood of 1927 on this stream, which incidentally gave some higher run-off than experienced locally last July, local interest in prevention, eventually led to the alleviation of emergency funds to construct four or five earth and rock fill dams on tributaries of this stream. This work is a little out of the ordinary in that it is being performed with CCC labor using the maximum amount of hand methods.

Muskingum Valley

This project is being performed by the War Department in co-operation with the Muskingum Conservancy District, organized for this specific purpose, and the State of Ohio. The Conservancy District contributes all land and easements with all expenses incident thereto, at an estimated cost of $7,740,000. The State agrees to relocate all public highways at an estimated cost of $3,727,000, making a total local contribution of $11,467,000. The total estimated cost is $33,347,000 of which about $22,000,000 represents the cost to the U. S.

These funds were allotted to the War Department by P. W. A. The project consists of thirteen earthfill dams and one concrete. All contracts have been awarded. The finished work will provide flood control for some 4,000 square miles or seventy per cent of watershed above Zanesville, Ohio.

Tygart River Reservoir

The site is in northern West Virginia on a tributary of the Monongahela, which in turn joins the Allegheny to form the Ohio River at Pittsburgh. This is a combined purpose reservoir with its flood control features secondary to water conservation with a view to maintaining navigable depths in the Monongahela River during periods of low discharge. Incidentally, it might be mentioned that this river, in normal times, carries more water-borne tonnage than any waterway in the world, including the Panama Canal. Estimated savings in transportation costs on coal movements alone exceed $15,000,000 a year. Acidity control for this stream will also be among the benefits.

The estimated cost of the project is $12,000,000 and involves a gravity concrete dam 215 feet high and 1,700 feet long with maximum storage capacity of 327,500 acre feet. The concrete yardage involved is about equal to that at Morris Dam in Tennessee. The possibility of developing waterpower at this sight has been investigated and the difficulty of efficiently combining two or three functions in the same reservoir readily becomes apparent. Although considerable secondary power is available from two to seven and one-half months of the year, the amount of prime or firm power would be extremely limited. The first concrete was poured about a month ago on this job.

Bluestone Reservoir

About three weeks ago a million-dollar allotment was made to perform the preliminary work and reservoir clearing for the Bluestone flood control and power development on the New River, a tributary of the Kanawha in West Virginia. The estimated cost is about $13,000,000. The project involves a concrete dam, 156 feet high, 1,850 feet long, with power-generating equipment of 120,000 kilowatt capacity.

This project is one of the most promising units of seventeen reservoir sites designed for the control of the Ohio River floods, as well as giving protection to the main valley of the Kanawha against local floods. The annual flood benefits are estimated at $370,000, as compared to annual charges of over $900,000. It is therefore necessary to balance these items by the sale of power estimated at about $1,000,000, if and when a market is developed. The reservoir will impound 625,000 acre-feet of water, although it must not be assumed that the total storage is available for *both* flood control and power. There will be 235,000 acre-feet of this total reserved for flood prevention.

Sardis Reservoir

This site is located on the Yazoo River, headwaters in Mississippi. It is at present the only approved unit of a system of seven reservoirs necessary to protect the Yazoo River basin from headwater floods. The estimated cost of the complete system is $48,000,000, with estimated prevented losses of $1,500,000. The Sardis unit will cost about $10,000,000. It consists of an earthfill dam eighty-nine feet high, impounding 1,447,000 acre-feet of water.

Conchas Reservoir

The same Treasury allotment containing the $200,000 item for the New York and Pennsylvania Survey, also carried a $4,500,000 allotment for the construction of the Conchas flood-control project on the South Canadian River, a tributary of the Arkansas, in eastern New Mexico in the vicinity of Tucumcari. The estimated total cost is $8,691,000. The dam will be earthfill, of a maximum height of 230 feet and a total crest length of 26,600 feet, including several low wing dikes. It will impound 800,000 acre-feet of water. The project has a potential annual value for flood control of $175,000; for Tucumcari water supply, $56,000, and for irrigation $366,000, although the latter must await the provision of necessary distributing system.

Fort Peck Dam

This project is located on the Missouri River in eastern Montana. Although the primary purpose of this development is to maintain a nine-foot navigable stage in the lower Missouri, it does have flood control and waterpower features as well. Also the magnitude of the undertaking might warrant the presentation of a few facts.

In an era noted for its great dams, this project takes rank with the largest. It will be, I believe, the largest earthfill dam in the world, being some 247 feet high, over one and one-half miles long and over one-half mile wide at the base. At pool level, the reservoir will impound 19,500,000 acre-feet, forming a lake some 185 miles long and seventeen miles across at its widest point.

The estimated cost of the project is $86,000,000. The enormous yardage of fill, some 100,000,000 cubic yards, is being placed hydraulically with four electric twenty-eight inch dredges, using 50,000 horsepower.

The spillway design was of primary importance on this project, as failure by overtopping of this dam would precipitate a disaster of first magnitude. A study of flood probability, using the method advocated by the late Allan Hazen, gave prospective discharges of 464,000 cfs for a 10,000 year flood. However, the theory of probabilities was not considered reliable for spillway design. Instead the worst possible combination of weather conditions were assumed and a resultant run-off of 360,000 cfs obtained.

The top eight feet of the reservoir will be used for complete flood control of the upper river with incidental benefits to the lower valley. The regular "June-rise" will be impounded and released in the dry months for the purpose of maintaining navigable depths from Sioux City, Iowa, to the mouth of the Missouri. By reducing flood heights much land will be reclaimed and bank erosion, amounting in a normal year, to an average of forty-seven acres per mile of river, will be materially reduced. Hydro-electric equipment of 50,000 horsepower will be installed initially, with an ultimate installation of 400,000 horsepower. This power is to be distributed to worthwhile irrigation projects in the vicinity, for pumping purposes.

Los Angeles County Flood Control

The Los Angeles project may be of interest here in that in order to obtain an allotment of Emergency Funds, a contribution by local interests of $3,500,000 toward the total cost of about $17,000,000 became necessary in order to reduce the man-year cost to a figure

(*Continued on page* 25)

TECHNOCRACY REVIEWED

The Search for Economic Equilibrium

Stimulated by Attempts to Apply Same

By
LEOPOLD LEITNER

WHEN at this time—as the country is being canvassed as to whether government spending is too high, too low, or just right—we turn to technocracy, it is with the intention of inquiring into the principles of economics by means of a more rational method than the whims of the voting public. The purpose is not to write an epitaph of technocracy, but rather an epilogue post festum of the press and of those who felt themselves compelled to add their contributions to the general criticism. The problems that technocracy analyzed and tried to solve are still with us, and, excepting the very general phrase of "common sense," nothing has been offered for their solution. As might be expected, the criticisms directed against technocracy generally fastened on irrelevancies and missed the main point. We read about razor blades lasting for a lifetime; as if it made much difference in our economic system whether a razor blade lasts for a year or for a lifetime! We read that factories are being planned to be run entirely without human labour; as if it made much difference whether ten men worked there or none! Even competent engineers were eager to point out that technological unemployment was not as great as the technocrats claimed it was. That may be so. However, one is inclined to think of Odysseus in the den of the giant Polyphemos—Odysseus having been assured that as a reward for some wine he would be the last one of all the Greeks to be devoured. The important fact is that there is technological unemployment and it is by the nature of things tending to become greater.

Dyed-in-the-wool technocrats will perhaps say that it makes a difference whether ten men are employed in a factory or none. Perhaps such would be the case if technocracy were adopted. But the possibility of that is practically nil. We are not so much concerned here whether technocracy should be adopted or not. We are interested in technocracy as a new trend in economic thought. As such it distinguishes itself from previous schools as being the only one suggestive of a scientific approach. As to its adoption, we have to ask ourselves the question: Will it work, and, is it worthwhile having?

When Adam Smith wrote the "Wealth of Nations" it may have been a revelation to his contemporaries, yet it was only a natural conclusion in the light of what happened before his time. The physiocrats had taught that gold was wealth and the country with the largest store of gold was the wealthiest. Naturally, if one country was gaining gold, another (unless it could mine enough) gradually had to lose it. One country could become rich only by another getting poor. Somebody was bound to observe that people do not eat gold and that nations could be quite well to do even if they had no gold at all. That man happened to be Adam Smith. To the keen mind of this man free trade was the solution of the economic question. Money was disproportionately small compared with actual wealth; interest was a stimulant to private enterprise. Smith believed in, and sponsored, a price system.

In our own day we have witnessed the birth of the Taylor system and scientific mass production. We have developed the ideal factory layout in which no machine stands idle. We have taken moving-picture photographs of workers to eliminate unnecessary motions and to determine the most efficient ones. We have displaced labor with automatic machinery and discovered that large productive capacity is worthless if there is no one to buy the products. Financing, originally based on an economic foundation, developed into a superstructure which made its own laws and superimposed them on the said economic foundation. Stock companies borrowed money to reap larger profits, which raised the values of the stocks, and seemingly justified increased capitalization and in turn still larger borrowings. When the financial superstructure was at its highest, the economic foundation gave away and the structure fell of its own weight. We had borrowed money, but when we tried to repay the debts found that our arbitrary unit of value had changed. Again, somebody was bound to see that economics consists of the orderly and scientific process of production and consumption; that it was not money that created wealth; that by a chain-letter process people could not get rich; that our unit of value was variable, and not constant; that we have been conducting industry and commerce on the principle of maximum profit, whereas it can be shown by mathematical reasoning that this cannot lead to maximum prosperity but, on the contrary, to concentration of wealth and stagnation. These facts led to the rise of technocracy.

If we are to contrast our modern economic system (a mixture of free trade and physiocracy, plus some other modern factors) with technocracy, we may do it by comparing the attitudes of a modern economist and a technocrat when faced with an economic enterprise. The modern economist will query: Will the enterprise pay in money? The technocrat on the other hand will inquire: Will it pay in work? Technocracy aims at maximum results with the least expenditure of work, or, to borrow a term from mechanics, technocracy believes in the principle of least work.

As an illustration of how a modern economist on the one hand, and a technocrat on the other, faces an economic decision, a problem from engineering economics may be taken—the so-called replacement problem. A comparatively new hydraulic power plant is to be supplanted by, say, a Diesel engine plant, because the second is supposedly more economical. In the comparative estimate, an accountant would take the book value of

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WHO IS AN ENGINEER?

Official Statement Concerning New York

Is Offered for General Information and Particular Attention of E.C.P.D.

WHO is an engineer, and by what right does he use that title or undertake to practice engineering? The sole answer to this question is in the Engineers' Registration Law. No individual is an engineer. in the professional sense, nor a member of the engineering profession, until he is licensed under the Engineers' Law.

To correct erroneous impressions that other agencies may divide this authority, an exchange of letters recording the official answer of the New York State Education Department is herewith presented.

"Mr. James O. Hoyle, October 18, 1935
Investigator for the Professions, State Education Department, Albany, N. Y.

Dear Mr. Hoyle:

I submit herewith a question relating to the interpretation of the Engineers' Law on which I am anxious to have the benefit of your opinion and if possible a ruling by the Attorney-General. Can you secure such a ruling from him? The question is as follows:

Is the qualifying authority of the State Board of Examiners of Professional Engineers to confer the right to use the professional designation "Engineer" shared by any other agency in this State? The conflicting agencies suggested are engineering societies and engineering schools.

Does the provisions of Article 55 of the Education Law restricting the use of the professional designation supersede conflicting authority stated or implied in charters previously granted to societies or educational institutions? It is suggested, for instance, that an institution like Cornell University, by virtue of its prior charter, is authorized to confer upon its graduates such degrees as "Civil Engineer" or "Mechanical Engineer," and that the recipients of such degrees may thereafter style themselves Civil Engineers, Mechanical Engineers, or Engineers, without qualifying under Article 55 of the Education Law.

What is the legal ruling on such apparent conflict? How is this question treated in the application of the Education Law relative to other professions?

May the graduate of a medical school display the designation "M.D." or "Doctor of Medicine" before receiving his license to practice? In the Briganti case, the court ruled that the possession of a university degree of "Civil Engineer" did not excuse the use of that designation on the letterhead of an unlicensed man. May that case be cited as a precedent?

In what manner and to what extent may the recipient of such college degree as "C.E." or "Civil Engineer" use it or display it prior to qualifying for registration under Article 55 of the Education Law?

Does the prior incorporation of an engineering society under the laws of this state give it the implied right to certify individuals as "Engineers" in conflict with Article 55 of the Education Law?

Faithfully yours,
D. B. STEINMAN,
Chairman, N. Y. State Board of Examiners of Professional Engineers."

"The University of the State of New York
The State Education Department, Albany
November 6, 1935

"Dr. D. B. Steinman, Chairman,
State Board of Examiners of Professional Engineers & Land Surveyors.

Dear Dr. Steinman:

I acknowledge your letter of October 18th, 1935.

Your Board alone has the right to confer the designation "Professional Engineer." Engineering schools, registered by the Regents of the University of the State of New York, have the authority to confer engineering degrees. The degrees so conferred cannot be used by the recipients in the practice of professional engineering until such time as they have met the requirements of and obtained a license under Article 55 of the Education Law.

A graduate of a Medical School may display the designation "M. D." or "Doctor of Medicine" before receiving his license to practice, except that he may not do so in connection with an occupation involving or pertaining to the public health. The degree, however, is truly his.

The recipient of a degree of "C.E." or "Civil Engineer" may likewise enjoy the use of his title except that he may not employ it in connection with professional practice until such time as he has been duly licensed in the State of New York.

No engineering society, irrespective of its date of incorporation, may confer any professional title or degree. It is true that many recognized engineering societies accept as junior or associate members, persons who have not been licensed as professional engineers in the State. The fact that such persons have been accepted as members of the society does not confer upon them any legal status.

Yours very truly,
JAMES O. HOYLE."

Excerpt from the Education Law of the State of New York, Article 55, Section 1453:

"Each professional engineer or land surveyor receiving this list (annual roster) is requested to report to the Department (of Education) the names and addresses of any persons known to be practicing Professional Engineering or Land Surveying whose names do not appear in this list.

The names of persons giving such information shall not be divulged."

P.W.A. AND W.P.A.—PRESENT AND FUTURE

An Appraisal of the Same
Together with Some Recommendations

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from
The American City of December

WHEN destructive critics of the Federal relief program foregather at the club or in the Pullman smoker, the alleged waste of untold millions in "boondoggling" is an increasingly popular subject of conversation. Ardent patriots who would have every school teacher sign an oath of allegiance to the Government of the United States appear to take great joy in alleging the gross and incurable incompetence of that Government and of the democracy on which it is founded.

With figures now available as to the apportionment of the billions voted by Congress in the Emergency Relief Appropriation Act of 1935, the time has come, The American City believes, for an appraisal by municipal officials and civic organizations of what is actually being done with the money. At the National Municipal League's forty-first annual conference on government, held in Providence November 25-26, Corrington Gill, Assistant Administrator of the WPA, gave an approximate accounting of how the $4,880,000,000 fund has been allocated.

Amounts allocated for direct relief have resulted in a reduction of the amount for work relief to about $3,700,000,000. Out of this sum about $1,140,000,000 has been allocated to WPA; $335,000,000 to non-Federal PWA projects; $100,000,000 to low-cost housing; $500,000,000 to highways and grade-crossing elimination; $600,000,000 to the CCC; $247,000,000 to the Resettlement Administration; $131,000,000 to river and harbor improvements; and most of the rest to a wide variety of emergency public works and other activities conducted by the various Federal departments and agencies.

Speaking particularly for the Works Progress Administration, Mr. Gill told the conference that approval has been given by the WPA to about 200,000 local projects, from which the State Administrators have the responsibility of selecting those combining, in their judgment, real public benefits with a maximum of needed local employment. Fifty thousand or more of these projects were reported as actually under way up to November 25, the approximate division being: streets and highways, 41%; public buildings, 10%; parks and playgrounds, 10%; sewage disposal and water supply, 9%; flood control and conservation, 6%; sanitation and health, 5%; airports, 3%; professional and clerical activities, 8%; and other miscellaneous, 8%.

No individual in the United States, if he had the final authority, would distribute the Federal relief funds exactly as listed above. Many, including the editors of The American City, would have preferred much larger allocations to non-Federal PWA projects and to low-cost housing than was actually made. But candor compels us to assign only part of the responsibility to the President and the Administration. It is true that the inevitable delays in forcing thousands of projects through the bottle-necks of Administrative and Presidential approval in Washington, prevented action on many a worth-while plan. But many another plan failed of final allotment because of excessive land costs or of the inability of local officials to assure the appropriations or bond issues on which PWA grants were conditioned.

Few readers of this magazine will question, we are sure, the general worthwhileness of local projects recently constructed with Federal aid; nor of aids to state and local planning.

To the President and Congress, in appropriating and apportioning unemployment relief funds for the fiscal year 1936, The American City respectfully urges:

1. That action be taken very early in the coming session, so that Federal, state and local governmental agencies may have as much time as possible to perfect plans for prompt and efficient use of such funds as may be made available.

2. That the appropriation be large enough to assure the nearest possible approach to full-time jobs in useful public works and services for all employables to whom private industry and local governments cannot otherwise offer reasonably steady work at a living wage; thus further stimulating the trend towards a high level of prosperity which has already been greatly aided by the spending program of the Federal Government.

3. That the "dole" be thus made as rapidly as may be a thing of the past, except for the indigent unemployables, for whose humanitarian care the state and local governments might then be made mainly, if not wholly, responsible.

4. That to accomplish these purposes the total Federal emergency appropriation for the fiscal year 1936 be not less than $5,000,000,000; and that of this amount there be apportioned on a population basis 25 per cent to state and 25 per cent to local governments. This would be equivalent to a per annum per capita allotment of about $10 each for the states and their subdivisions to be expended beginning July 1, 1936, for public works, services and equipment; such expenditures to be in addition to normal budget expenditures, and subject to approval by the respective state planning boards rather than by the PWA or WPA in Washington.

5. That, of the 50 per cent for which Federal agencies would be responsible, a substantial sum be earmarked for aid, under proper restrictions to large-scale

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THE SOCIETY'S INSIGNIA

Contract for Emblems Awarded

Recommendation of Committee Secures Approval and Action

ON SATURDAY, December 14, bids for replicas of the emblem adopted by the Society at its Annual Meeting in Columbus were opened at the Washington headquarters.

REPORT ON EMBLEM

"The Emblem Committee respectfully submits herewith a blueprint of a full size design of an emblem, which is the unanimous choice of its members, together with the following statement, explanatory, in part, of the reasons for its selection:

The committee, with the assistance of collaborating artists, produced a number of different original designs. A considerable number of designs and suggestions—many unsolicited—were also received from various sources along the Atlantic seaboard and from the Middle West.

All designs and suggestions were carefully studied and especial consideration was given to two items: (*a*) a suggestion offered a number of times, that provision be made for the inscription of the name of a state on the emblem; (*b*) the authoritative recommendation that the emblem should have a blue field.

A number of objections to the appearance of state names presented themselves. The inscription of forty-eight different state names on emblems would be costly and would give rise to complications too numerous to be discussed in this report. Moreover, it would lead to an incongruity—an emblem both national and sectional in significance. Its sectional accentuation would be out of harmony with the spirit of the organization which fosters and promotes professional solidarity—the welding together of the members of the profession into a great national structure, in which technical, political or geographical differentiations are subordinated to the general good of the nation and the profession throughout the nation. The emblem of the National Society should be symbolic only of the national organization; the various state organizations may select emblems but they should be distinct from the national emblem. The nation has one symbol—Old Glory; it floats over separate states having separate state flags; it waves above the national army while its various regiments fly their separate regimental colors. These considerations led the committee to a unanimous disapproval of the suggestion.

The recommendation that a blue field be adopted was given much thought. The national engineering societies have so long used blue in their emblems that it is regarded by many as the traditional color of the engineering profession. Civil, mechanical and electrical branches of the profession have adopted blue; the shapes of their emblems are different but the color is the same. It is significant that having a common color they also have a common purpose; they were all originally organized for, and are still primarily engaged in, the development of the technical aspects of the profession. This is a highly laudable purpose—but it is not coincident with that of the National Society of Professional Engineers. In fact, blue has been so intimately associated with technical activity and development that the propriety of its adoption by this non-technical society might be questioned. In the light of these reflections, consideration was given to other colors—and to black "the absence of color." Now the distinguishing characteristic of black is that it absorbs all rays of light without separating them. It is also a characteristic of this society that it aims at the absorption of all licensed members of the profession—regardless of the separating influences of differing technical activities—into one national body working primarily for the public, and secondly, the professional welfare. Through the common possession of a distinguishing characteristic, black can be significantly associated with the Society. Moreover, gleaming gold letters on a lustrous black field will produce a beautiful and distinctive color scheme. The members of the committee are unanimous in their approval of a black field.

It is worthy of note that the suggestion of a black field originated in the office of the State of Ohio Department of Public Works at Columbus, Ohio—the city in which the convention of the National Society is being held. The emblem recommended, combining the color suggested by the Middle West with the form suggested by the East, is so happily significant of far-flung cooperative interest as to constitute an assuring augury of success.

This Society is new in its philosophy of organization and objective, and young in experience in national activities. The appearance of the date of its founding on its obverse face in giving emphasis to these facts is to be interpreted as a declaration of faith and confidence in a long future of usefulness and accomplishment.

The emblem submitted is suggestive of the engineering profession in its form and design while, at the same time, it is essentially different in appearance from the emblems adopted by the other national engineering organizations. It is simple, distinctive and appropriate, and the committee respectfully recommends its adoption.

The committee further recommends that:

The emblem be made only of one material and quality—fourteen-carat gold throughout; it be made only in one size; it be manufactured, as desired, in pendant, button or badge form with safety clasp; the name of each ordering member be engraved on the reverse side of the emblem; that the cost of the emblems to the members should not exceed $5.00 each; that all emblems

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THE TULANE UNIVERSITY LIBRARY NEW ORLEANS

PROPERTY EVALUATIONS

Opportunities for Engineers

F.H.A., H.O.L.C., R.F.C. and Other Agencies Conduct Vast Appraisal Programs

By
JACOB MARK

THE Federal Housing Administration has recently issued an Underwriting Manual which treats of Underwriting and Valuation Procedure under Title II of the National Housing Act. This book gives detailed information as to how values may be set up as a basis for the placing of mortgages which are to be guaranteed by Government bureaus.

Section 4, of the Manual relates to the inspection of completed properties and inspections during construction. In no part of this section is the engineer mentioned, though the knowledge required for proper inspections is clearly within the scope of the engineer. For example, quoting from the Underwriting Manual, "He (the inspector) must also check the excavation to determine that it conforms to size and depth indicated on the drawings, and he must examine those parts on which footings and foundations are to rest with reference to bearing capacity, distance below frost line. and any other condition which might affect the structural soundness or durability of the completed building." Also quoting, "The second inspection requires a careful check of structural details and mechanical equipment which is in place." The above quotations indicate clearly that a professional engineer should make the inspections. However, the engineer has been given no consideration.

Under the Chief Underwriter there are four sections called (*a*) Architectural Section, (*b*) Valuation Section, (*c*) Underwriting Section, (*d*) Research Section. There is no Engineering Section. Primarily this is due to the fact that the Engineer himself has taken no interest in this type of work.

Up to recently practically all appraisal work on real property has been in the hands of members of real estate boards and members of appraisal boards. In many cases the men who have done appraisal work have to give opinions on structural stability and they do so without any professional knowledge on which to base their reports. The reason why the work is being done by these men and not by the professional engineers is the lack of interest on the part of the engineer.

The few engineers who have knowledge of evaluation work have been busy during the depression and have made fair incomes out of their work. The engineer should realize that he has a competence for appraisal work because of his extensive training and because he is mentally equipped to master the problems of valuation. If the engineer takes an interest in appraisal work it will further his interest in all public relations. In this respect the engineer has been sadly lacking. He has been content to solve structural problems while the realtors have been collecting fees for work which is directly within the scope of the engineer.

The Law by virtue of which the professional engineer is licensed to practice in the State of New York, defines a person practicing Professional Engineering, as follows:

"A person practices Professional Engineering, within the meaning and intent of this article, who holds himself out as able to perform, or who does perform any professional service, such as consultation, investigation, evaluation, planning, design, or responsible supervision of construction or operation, in connection with any public or private utilities, structures, buildings, machines, equipment, processes, works, or projects, wherein the safeguarding of life, health or property is concerned or involved, when such professional service requires the application of engineering principles and data." Under this definition engineers should be enabled to make appraisals of all property including real estate.

In the news recently there appeared a notice that the New York Chapter of American Institute of Real Estate Appraisers appointed a special committee to study the advisability of placing the supervision of real estate appraisals under the Educational Department and the Board of Regents of the State of New York. The organization just mentioned has become an important one and has an organized group for steering legislation in their favor. They are aiming to have all appraisers specially licensed under a new law. If the engineers do not take an immediate and active interest in appraisal work they would be debarred from offering their services as appraisers. It will be interesting to make the engineers aware of the fact that there is a vast volume of appraisal work being done now, especially with the activity of the FHA, HOLC, RFC and other government bureaus. Engineers can, without much difficulty, procure texts on land appraisal and with their knowledge of economics and by using the powers conferred upon them by the law, engage in making intelligent appraisals.

Those engineers who are interested in engaging in appraisal work should immediately procure a copy of the Underwriting Manual which can be obtained from the Federal Housing Administration. They should also change their letterheads if necessary, so that the text on these letterheads will offer the services of the engineer for real property appraisal work in addition to other work that they do. The engineer should be made aware of the value of seeking appraisal work, and he should offer his services for that purpose to financial institutions which make loans. The engineer should be made conscious of the fact that he can offer valuable services to government bureaus and to institutions which have large property interests. It is up to him to

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ITEMS OF GENERAL INTEREST

REPORTS, NEWS, STATE ACTIVITIES

ENGINEERS WANTED

Correspondents and readers are invited to submit for publication items of interest to the professional engineer of the country. Such material should be forwarded as quickly as possible in order to keep news up to date.

BRIEFS ON SOCIETY ACTIVITIES

From Convention Reports

Washington Secretariat
by
WILLARD S. CONLON

Out of mind and heart proceed all our energies, practices and issues of life. In the mind and hearts of a comparatively small group of your fellow engineers approximately one year ago was born the vision of this glorious institution, the National Society of Professional Engineers. A plan of organization and a platform were adopted, the progress of which to date has been exceptionally noteworthy considering the many factors involved in building a new organization.

The facilities for recording all the progress have unfortunately been limited. You have, however, received in the American Engineer each month a picture of the march to the ultimate success of our objectives. You have visioned engineers becoming vocal, emerging from their shells. Think of it, having the temerity to express their opinions. Among the many excellent papers appearing in the American Engineer to date there are some which strike me worthy of again calling to your attention, if you have not read them, please do. They contain food for constructive thought. Here they are:

1. Accomplishment Demands Organization, by Engr. Morris Goodkind, April issue, page 7.

2. Engineers and Unemployment, by President D. B. Steinman, February issue, page 8.

3. Engineers and the Future, by Engr. Gerald Knight, First Secretary of the Society, February issue, page 6.

4. Patronized and Exploited, by Engr. Joseph B. Diamond, May issue, page 8.

5. A Scientific Money System, by Engr. Gustav Lindenthal, August issue, page 6.

6. The splendid editorials which bespeak the editor's possession of the courage of his convictions and the many other excellent articles.

I will record here briefly some of the activities of the Washington office which time did not permit preparing for the American Engineer. These activities will be classified as organizational, legislative and public relations.

Under the heading of organizational activities comes the recently organized District of Columbia Society of Professional Engineers which held its second meeting in the Mayflower Hotel in Washington on October 17th. The speakers were the Honorable Charles O. West, under secretary of the Interior Department, your President, Engr. D. B. Steinman and Engr. Reynolds, Assistant Director of Procurement, Treasury Department.

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UNITED STATES CIVIL SERVICE EXAMINATION

Senior Chemist (Distillation), $4,600 A Year

Applications must be on file with the United States Civil Service Commission at Washington, D. C., not later than January 6, 1936

The United States Civil Service Commission announces an open competitive examination for the position named above. Vacancies in this position in Washington, D. C., and in the field and in positions requiring similar qualifications will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. The salary named above is subject to a deduction of 3½ percent toward a retirement annuity.

Present vacancy.—At present there is a vacancy in the Alcohol Tax Unit, Treasury Department, which will be filled as a result of this examination.

Duties.—1. To supervise all investigations concerning the formulation of denatured alcohol.

2. To develop denaturant formulae not subject to "cleaning" processes at present available to illicit distillers.

3. To investigate the use of "metallo-organic" compounds as markers in denatured alcoholic formulae.

4. To study processes employed in "cleaning" denatured alcohol by illicit distillers to the end that formulae will be developed which will interfere with such "cleaning" operations.

5. To prepare a program of research and development to the above end.

Basis of ratings.—Competitors will not be required to report for examination at any place, but will be rated on their education and experience on a scale of 100, such ratings being based upon competitors' sworn statements in their applications and upon corroborative evidence.

APPLICANTS MUST POSSESS THE FOLLOWING QUALIFICATIONS

1. They must be citizens of the United States.

2. *Education.*—They must have been graduated with a bachelor's degree from a college or university of recognized standing upon the completion of at least 118 semester hours, majoring in chemistry or chemical engineering.

3. *Experience.*—In addition, except for the substitution provided below, they must show, as a minimum, experience, *acquired since graduation,* of length and quality indicated below:

At least 6 years of responsible progressive professional experience in scientific chemical work of an investigative or process-development nature, at least 2

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PENNSYLVANIA

Press Cooperation

The following letter requesting cooperation from the press, has been addressed to the leading journals of the State:

"To the Editor:

With a view toward preventing delays and inconveniences when corporations are applying for charters or firms for registration under the Fictitious Names Act, which use the words "Engineering" or "Engineers" in their title, or which include engineering in the purpose or character of their business, the following suggestion is made:

Section 8 of the Act for the registration of Professional Engineers, approved May 6, 1927, P.L. 820, provides as follows:

"Practice of Firms, Copartnerships and Corporations—A firm copartnership or corporation may only engage in the practice of the profession or engineering, in any of its branches, including surveying, in this Commonwealth, in the name of the person or persons connected with such firm, copartnership or corporation who is or are in responsible charge of the design, or of the supervision of the work which constitutes such practice, each of whom is registered as required by this act."

The Courts of Pennsylvania have ruled that engineering is a profession and that a profession cannot be incorporated. Furthermore, the use of the term "Engineer," "Engineers," or "Engineering" in a firm title when the purposes of the firm indicate that it is not intended to engage in the practice of engineering, is misleading to the public and, therefore, not justifiable. The use of the word "Engineer" or "Engineers" in the title is only justified when the purposes of the organization include work that involves the practice of engineering and in that case only when Registered Professional Engineers are employed and in such responsible charge of such work.

When applications for charters are forwarded to the State Bureau of Corporations and involve the above, the applications are referred to the State Board for Registration of Professional Engineers, who investigate to see whether the company does engineering work and whether it employs Registered Professional Engineers, also whether, when the term "Engineer" or "Engineers," appears in the title, the use of that word is justified by the expressed purposes of the organization.

The Pennsylvania Society of Professional Engineers also follows through such applications. If, upon investigation, it develops that the corporation or firm does not employ Registered Professional

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BRIEFS ON SOCIETY ACTIVITIES

(*Continued from page* 16)

The guests were Admiral N. M. Smith, Chief of Bureau of Docks and Yards; Commissioner Mead, Bureau of Reclamations; Mr. A. R. Clas, Director of Federal Housing; Mr. W. F. Fellows, Assistant Chief Engineer, W.P.A.; Capt. J. C. Gholsten, Director of Engineering, P.W.A.; and many other prominent officials.

Notwithstanding the limited facilities at hand in operating our Washington office worthwhile progress in advancing our objectives has been made in the past six months.

N.S.P.E. policies, objectives and recommendations have been accorded recognition in many of the administrative agencies.

Herewith are some of the high spots in the legislative activities:

The Congressional Record includes a reference to N.S.P.E.'s support of progressive legislation.

S-2665 initiated in the Congressional Committee on expenditures in executive departments and later transferred, considered and reported favorably by the Senate Committee on public lands and surveys. This bill designed to change the name of the Department of Interior to the Department of Conservation and Works will be considered by the next session of Congress. N.S.P.E. has supported this progressive legislation and recommended that the name be changed to the Department of Public Works.

S-2944 designed to restrict the appearances of persons other than attorneys before Governmental agencies in claims, proceedings or other matters when the interpretation or the construction of the Constitution or statutes of the United States are involved. If enacted, this bill would eventually restrict the practice of Consulting Engineers in representing their clients before Governmental agencies. Your representative cooperated with the Certified Public Accountants in opposing the enactment of this bill and the bill was reported adversely by the Committee.

S-2512 was designed to eliminate lobbying, but went too far in its restrictions and if adopted any person having business with the Governmental agencies would have had to file a report every 3 months outlining his activities, moneys received, from whom, etc. Briefly, the bill states: Any person who attempts to influence any Federal Bureau, Agency or Government Official or Government employee, to make, modify or cancel any contracts with the United States Government would have to register with the Clerk of the House or the Senate, give his name, address and the name of person or persons by whom he is employed and in whose interest he appears. He would also be required to make a new registration every year.

3-AAA—The members of the Conference Committee were apprized of N.S.P.E.'s disapproval of an amendment affecting not only the AAA bill but all other acts of Congress which, if adopted, would require Senate confirmation of all non-Civil Service Federal employees receiving over $7500 a year who were not attorneys. N.S.P.E. opposed the adoption of the amendment on the basis that it was class legislation.

This is intended merely as an indication of the Society's virility. Expansion will permit of unlimited service to public and profession.

PUBLIC RELATIONS

By

VICTOR GELINEAU

The organization of the Committee on Professional Relations which began in April, 1935, coincided with or followed adjournment of the Legislatures of the various States. Therefore, no time was available for the study in the Legislatures or enactments that might affect the status of the engineer. It is expected that the coming session of the State law-making bodies will be marked by successful attempts of this Committee to accomplish something worthwhile for the members of our profession.

At the outset it was found very difficult to obtain offers to serve as chairmen of the various sub-committees, one reason being that the personnel of this Committee were largely educators and naturally desired to serve on the sub-committee on Engineering Education. The Committee was divided into sub-committees with these classifications:

1. Fees for Engineering Services.
2. Salaries for Employed Engineers.
3. Ethics and Professional Practice.
4. Methods of Engaging Engineering Services.
5. Engineering Education.
6. Relations with Other Professions.
7. Relations with Other Organizations.
8. Relations with Engineering Assistants (Juniors).

Correspondence on this subject consumed a great part of the summer but culminated in the formation of the committees as follows:

1. *Fees for Engineering Services*
   Engr. L. A. Emerson, chairman, Columbia, S. C. Messrs. Alfred Mullikin, Northeast Harbor, Me.; C. T. Olmsted, Detroit, Mich., and Homer G. Balcom, New York City.
2. *Salaries for Employed Engineers*
   Prof. John C. Riedel, chairman, Brooklyn, N. Y.; Messrs. H. G. Sours, Akron, Ohio; J. H. Griffin, New York City.
3. *Ethics and Professional Practice*
   Prof. E. W. Saunders, chairman, University, Va.; Messrs. Homer G. Balcom, New York City; C. T. Olmsted, Detroit, Mich., and C. C. Knipmeyer, Terre Haute, Ind.
4. *Methods of Engaging Engineering Services*
   Engr. Homer G. Balcom, chairman, New York City; Messrs. H. D. Mendenhall, Tallahassee, Fla.; H. E. Babbitt, Urbana, Ill.
5. *Engineering Education*
   Prof. H. E. Babbitt, chairman, Urbana, Ill.; Messrs. C. L. Mann, Raleigh, N. C.; John C. Riedel, Brooklyn, N. Y.; L. F. Van Hagan, Madison, Wis.; H. D. Mendenhall, Tallahassee, Fla.; F. D. Weber, Portland, Ore.; C. T. Olmsted, Detroit, Mich., and E. W. Saunders, University, Va.
6. *Relations with Other Professions*
   Prof. C. L. Mann, chairman, Raleigh, N. C.; Messrs. L. A. Emerson, Columbia, S. C.; C. T. Olmsted, Detroit, Mich.; L. F. Van Hagan, Madison, Wis.
7. *Relations with Other Organizations*
   Engr. F. D. Weber, chairman, Portland, Ore.; Messrs. C. T. Olmsted, Detroit, Mich.; Alfred Mullikin, Northeast Harbor, Me.; H. G. Sours, Akron, Ohio.
8. *Relations with Engineering Assistants (Juniors)*
   Engr. H. D. Mendenhall, chairman, Tallahassee, Fla.; Messrs. J. H. Griffin, New York City; C. C. Knipmeyer, Terre Haute, Ind.; E. W. Saunders, University, Va.

It is the plan to leave, as much as possible, initiative to the Chairman and members of the individual sub-committees. It is realized that the members of the Committee will not be able to study the legislation in the various forty-eight states, to say nothing of the Federal Congress, but in that respect the Secretary of the Society will be requested to advise the committees as much as practicable to the end that the engineer's status may be gradually ameliorated.

DERIVATION OF ENGINEER

From Literary Digest

"The term "engineer" has been in the English language since the early 14th century at least. It meant at that time "one who designs and constructs military works for a type of defense." A century later the meaning was extended to include "one who designs, contrives, or invents, as an author or designer; also, a plotter, a layer of snares." The term is from the Late Latin ingeniatorem, from the Early Latin ingenium.

Spelling and pronunciation have varied from the 14th century engynour through yngynore, ingenor, inginer, engyner, ingener, engenier, to the spelling engineer, in the 17th century, the form still prevailing.

Pronunciation prior to the 18th century can be assumed only from the spelling. In 1790 John Walker indicated a pronunciation identical with that in use today, and this pronunciation is common now in England and America."

UNITED STATES CIVIL SERVICE EXAMINATION

(*Continued from page* 16)

years of which must have been in the practice and theory of distillation technique involving the separation of low-boiling fractions and azeotropic mixtures. Experience in the manufacture and use of "metallo-organic" compounds and in the use of activated carbon or other absorbents in filtration technique is highly desirable, and additional credit will be given for experience of this character.

The applicant must show demonstrated ability as a leader in research, and a considerable portion of his experience must have involved full responsibility for planning and conducting research.

Substitution of additional education for experience.—Each year of postgraduate work in a college or university of recognized standing, including the completion of 30 semester-credit hours or the equivalent, with major work in organic chemistry, will be accepted in lieu of each

year of the required experience up to a maximum of 3 years, provided that in any case the applicant must show the 2 years of experience in distillation technique required above.

Recent experience.—It must be shown in every case that the 2 years of experience in distillation technique, in order to be qualifying, have been obtained within the 10 years immediately preceding the date of the close of receipt of applications.

4. *Age.*—They must not have reached their fifty-third birthday on the date of the close of receipt of applications. This age limit does not apply to persons granted preference because of military or naval service, except that such applicants must not have reached the retirement age.

5. *Physical ability.*—Applicants must be in sound physical health. Remediable defects or curable disease will not exclude a person from examination, but proof that such defects have been remedied, or the disease, if any, cured, must be received during the life of the eligible register before persons otherwise qualified may be considered for appointment under civil-service rules.

Persons selected for appointment will be required to pass a physical examination given by a Federal medical officer. Failure to pass such physical examination will prevent appointment.

APPLICANTS MUST FILE THE FOLLOWING WITH THE U. S. CIVIL SERVICE COMMISSION, WASHINGTON, D. C., NOT LATER THAN JANUARY 6, 1936

1. Application Form 8, properly executed, including the Officer's Certificate of Residence.

2. Applicants who wish to claim veteran preference must file Preference Form 14 (blue), properly executed and accompanied by the documentary proof required therein.

3. Foreign-born applicants must submit with their applications proof of United States citizenship.

4. Applicants must submit with their applications their unmounted photographs, taken within 2 years, with their names written thereon. Proofs or group photographs will not be accepted. Photographs will not be returned to applicants.

5. A list of publications or writings, of which the applicant is the author, to be considered as corroborative evidence of any research work claimed. If it is impossible to submit writings as supporting evidence of research work claimed due to the confidential nature of such work, a signed statement must be submitted, to be considered as a part of the application and covered by the jurat, to that effect.

Certification.—Certication to fill positions in the field service will be made of the highest eligibles on the register from the entire country who have not expressed unwillingness to accept appointment where the vacancy exists, except that certification may be restricted to the State or group of States in which the vacancy exists, provided that satisfactory evidence is presented to the Commission showing that the needs of the service will be better met by such restricted certification. The department or office requesting certification of eligibles has the legal right to specify the sex desired.

Fingerprints. — Fingerprints will be taken of all persons appointed from this examination.

Application forms. — The necessary forms may be obtained from the *Secretary, Board of United States Civil Service Examiners, at any first-class post office,* from the United States Civil Service Commission, Washington, D. C., or from the *United States Civil Service district office* at any of the cities given below (the title of the examination desired should be stated):

Atlanta, Ga., New Post Office Building.
Boston, Mass., Post Office and Courthouse Building.
Chicago, Ill., New Post Office Building.
Cincinnati, Ohio, Old Post Office Building.
Denver, Colo., Post Office Building.
New Orleans, La., Customhouse.
New York, N. Y., Federal Building, Christopher Street.
Philadelphia, Pa., Old Post Office Building.
Seattle, Wash., Federal Office Building.
St. Louis, Mo., New U. S. Courthouse and Customhouse Building.
St. Paul, Minn., New Post Office Building.
San Francisco, Calif., 995 Market St.
Honolulu, T. H., Federal Building.
Balboa Heights, Canal Zone, *Secretary, United States Civil Service Board.*
San Juan, P. R., *Chairman, Puerto Rican Civil Service Commission.*

The Exact Title of the Examination, as Given at the Head of This Announcement, Should Be Stated in the Application Form.

Issued December 9, 1935.

Welding Engineer, $3,800 A Year
Associate Welding Engineer, $3,200 A Year
Assistant Welding Engineer, $2,600 A Year

NAVY DEPARTMENT

Applications must be on file with the United States Civil Service Commission at Washington, D. C., not later than January 6, 1936

The United States Civil Service Commission announces open competitive examinations for the positions named above. Vacancies in these positions in Washington, D. C., and in the field, and in positions requiring similar qualifications will be filled from these examinations, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. The salaries named above are subject to a deduction of 3½ percent toward a retirement annuity.

Present Vacancies.—Welding Engineer, Philadelphia Navy Yard; Assistant Welding Engineer, Norfolk Navy Yard; Assistant Welding Engineer, Superintending Constructor's Office, Newport News.

Duties.—To perform the research, investigation, or development work necessary for the establishment of satisfactory welding procedures, processes, technique, materials, and equipment, in connection with welding operations; to design, or assist in the design of welded structures; to develop methods of fabrication and assembly; to conduct tests on welded structures; to assist in the conduct of welding schools and tests of welders; to act in an advisory capacity to shop superintendents, and to supervise inspection, in connection with production of welded structures. The difficulty of the work to be performed and the degree of supervision and responsibility will vary with the grade of the position.

Basis of Ratings.—Competitors will not be required to report for examination at any place, but will be rated on their education and experience on a scale of 100, such ratings being based upon competitors' sworn statements in their applications and upon corroborative evidence.

Applicants must possess the following Qualifications

1. They must be citizens of the United States.

2. *Education.*—Except for the substitution of experience for education as hereinafter provided, they must have been graduated with a degree in engineering or metallurgy from a college or university of recognized standing upon the completion of a full four-year course.

3. *Experience. — Welding Engineer.*—They must show that they have had at least five years of broad progressive professional engineering experience, including not less than three years of important and responsible experience in welding research or in development or improvement of welding procedures, processes, practices, or applications, showing marked professional attainments and important contributions in the field of welding engineering as distinguished from mere welding practice.

Associate Welding Engineer.—They must show that they have had at least three years of progressive professional engineering experience, including not less than two years of moderately difficult, important and responsible experience in welding research or in development or improvement of welding processes, procedures, practices, or applications, showing considerable professional attainments and contributions of value in welding engineering as distinguished from mere welding practice.

Assistant Welding Engineer.—They must show that they have had at least two years of professional engineering experience, including not less than one year of work in welding research or in the development or improvement of welding processes, procedures, practices, or applications.

Substitution.—In lieu of each year lacking completion of the specified engineering or metallurgy course in a college or university of recognized standing, there may be substituted one year of progressive experience in studies and investigations in the field of welding in the development of advanced welding equipment, processes, practices or applications.

Nonqualifying Experience.—Experience only in the occupation of welder, or as supervisory welder, or in allied capacity *not* involving the progressive studies and investigations specified, will not be accepted as meeting these terms of substitution.

For any of these grades, applicants should describe fully and in detail their welding engineering experience, including the types of welding processes, kinds of metals and alloys, and types of structures on which they have worked, and the ex-

tent of their experience on each process, material and type of structure.

4. *Age.*—On the date of the close of receipt of applications, applicants for Welding Engineer must not have reached their fifty-third birthday, applicants for Associate Welding Engineer must not have reached their forty-fifth birthday, and applicants for Assistant Welding Engineer must not have reached their fortieth birthday. These age limits do not apply to persons granted preference because of military or naval service, except that such applicants must not have reached the retirement age.

5. *Physical Ability.*—Applicants must be in sound physical health. Remediable defects or curable disease will not exclude a person from examination, but proof that such defects have been remedied, or the disease, if any, cured, must be received during the life of the eligible register before persons otherwise qualified may be considered for appointment under civil-service rules. Persons selected for appointment will be required to pass a physical examination given by a Federal medical officer. Failure to pass such physical examination will prevent appointment.

Applicants Must File the Following With the Civil Service Commission, Washington, D. C., not Later than January 6, 1936

1. Application Form 8, properly executed, including the Officer's Certificate of Residence.

2. Applicants who wish to claim veteran preference must file Preference Form 14 (blue), properly executed and accompanied by the documentary proof required therein.

3. Foreign-born applicants must submit with their applications proof of United States citizenship.

4. Applicants must submit with their applications their unmounted photographs, taken within 2 years, with their names written thereon. Proofs or group photographs will not be accepted. Photographs will not be returned to applicants.

5. Applicants should submit a list of their publications in the field of welding, to be considered as corroborative evidence of their qualifications.

Assignment of Grade.—Applicants will be rated for *each* of the above-named grades for which they qualify and for which the entrance salary is equal to or higher than the entrance salary they express willingness to accept.

Certification.—Certification to fill positions in the field service will be made of the highest eligibles on the appropriate register from the entire country who have not expressed unwillingness to accept appointment where the vacancy exists, except that certification may be restricted to the State or group of States in which the vacancy exists, provided that satisfactory evidence is presented to the Commission showing that the needs of the service will be better met by such restricted certification. The department or office requesting certification of eligibles has the legal right to specify the sex desired.

Fingerprints. — Fingerprints will be taken of all persons appointed from these examinations.

Application Forms. — The necessary forms may be obtained from the *Secretary, Board of United States Civil Service Examiners, at any first-class post office,* from the United States Civil Service Commission, Washington, D. C., or from the United States Civil Service district office at any of the cities given below (the title of the examination desired should be stated):

Atlanta, Ga., New Post Office Building.
Boston, Mass., Post Office and Courthouse Building.
Chicago, Ill., New Post Office Building.
Cincinnati, Ohio, Old Post Office Building.
Denver, Colo., Post Office Building.
New Orleans, La., Customhouse.
New York, N. Y., Federal Building, Christopher Street.
Philadelphia, Pa., Old Post Office Building.
Seattle, Wash., Federal Office Building.
St. Louis, Mo., New U. S. Courthouse and Customhouse Building.
St. Paul, Minn., New Post Office Building.
San Francisco, Calif., 995 Market St.
Honolulu, T. H., Federal Building.
Balboa Heights, Canal Zone, Secretary, United States Civil Service Board.
San Juan, P. R., Chairman, Puerto Rican Civil Service Commission.

The Exact Title of the Examination Desired, as Given at the Head of This Announcement, Should Be Stated in the Application Form

Issued December 9, 1935.

Chief Engineering Draftsman, $2,600 A Year

Principal Engineering Draftsman, $2,300 A Year

(FOR WORK ON SHIPS)

Optional Branches: Marine Engines and Boilers—Electrical (ship).

APPLICATIONS MUST BE ON FILE WITH THE UNITED STATES CIVIL SERVICE COMMISSION AT WASHINGTON, D. C., NOT LATER THAN *JANUARY* 6, 1936

The United States Civil Service Commission announces open competitive examinations for the positions named above, to be held at any of the places listed hereon. Vacancies in these positions in Washington, D. C., and in the field, and in positions requiring similar qualifications will be filled from these examinations, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. The salaries named above are subject to a deduction of 3½ percent toward a retirement annuity.

Vacancies.—A number of existing vacancies in the Navy Yard, Mare Island, Calif., will be filled from these examinations.

Duties.—Under professional guidance, to perform ship drafting consistent with the optional branch and of varying degree of responsibility according to the grade of the position.

Subjects and weights.—Competitors will be rated on the following subjects, which will have the relative weights indicated:

Subjects	*Weights*
1. Drawing and lettering	70
2. Education and experience	30
Total	100

One day of 7 hours will be required for this examination.

Competitors must bring to the examination room a drawing board not less than 18 by 24 inches, 1 sheet of tracing cloth 18 by 18 inches, 1 sheet of tracing paper 18 by 18 inches, T-square, triangle, pens, black drawing ink, thumb tacks, pencils, drawing instruments, and any other drawing materials which they deem necessary.

No drawing materials will be furnished in the examination room.

Ratings required.—In Subject 1, Drawing and Lettering, nonpreference competitors must attain a rating of at least 70, competitors granted military preference a rating of at least 65, excluding preference credit, and competitors granted disability preference a rating of at least 60, excluding preference credit. In addition, all competitors must attain in the whole examination an average percentage of at least 70, including preference credit, if any.

APPLICANTS MUST POSSESS THE FOLLOWING QUALIFICATIONS

1. They must be citizens of the United States.

2. Education and experience—General requirement.—They must have completed a 4-year high-school course or 14 units of high-school work acceptable for college entrance; provided, that in lieu of each year of such a course the applicant may substitute 6 months of experience of the same kind as, but in addition to, that prescribed in the following paragraphs.

Additional requirements.—For the position of Principal Engineering Draftsman, applicants must show (*a*) that they have had at least 1 year of practical elementary drafting-room experience; or (*b*) that they have successfully completed a course of drafting requiring at least 400 hours of actual classroom work in a school specializing in drafting; or (*c*) that they have completed 1 year of an engineering or architectural course in a college or university of recognized standing; and, in addition to either (*a*), (*b*), or (*c*), that they have had, as a minimum, except for the substitution provided below, 4 years of progressively responsible electrical, mechanical, or engines and boilers drafting experience, 2 years of which must be ship drafting experience consistent with the optional branch selected.

In addition to meeting the requirements for the Principal Engineering Draftsman grade, applicants for the Chief grade must have had 1 additional year of progressively responsible ship drafting experience consistent with the optional branch selected.

Substitution.—For either position the successful completion of college work in naval architecture, marine engineering, electrical engineering, or mechanical engineering at a college or university of recognized standing may be substituted, year for year, for the required experience up to a total of 3 years.

3. Age.—They must not have reached their fifty-third birthday on the date of the close of receipt of applications.

This age limit does not apply to persons granted preference because of military or naval service, except that such applicants must not have reached the retirement age.

4. *Physical ability.*—Applicants must be in sound physical health. Remediable defects or curable disease will not exclude a person from examination, but proof that such defects have been remedied, or the disease, if any, cured, must be received during the life of the eligible register before persons otherwise qualified may be considered for appointment under civil-service rules.

Persons selected for appointment will be required to pass a physical examination given by a Federal medical officer. Failure to pass such physical examination will prevent appointment.

Applicants Must File the Following With The United States Civil Service Commission, Washington, D. C., Not Later Than January 6, 1936

1. Application Form 8, properly executed, including the Officer's Certificate of Residence.

2. Applicants who wish to claim veteran preference must file Preference Form 14 (blue) properly executed and accompanied by the documentary proof required therein.

3. Foreign-born applicants must submit with their applications proof of United States citizenship.

Assignment of grade.—Applicants for the higher grade who are found not qualified therefor will be considered for the lower grade unless they state in their applications that they wish to be considered only for the higher grade. Persons who are found eligible for the higher grade will also be rated for the lower grade if they have expressed a willingness to accept the lower salary and are otherwise eligible for the lower grade.

Photographs.—Applicants must submit to the examiner on the day of the examination their photographs, taken within 2 years, with their names written thereon, and securely pasted in the space provided on the admission cards sent them after their applications are filed. Proofs or group photographs will not be accepted. Photographs will not be returned to applicants.

Certification.—Certification to fill positions in the field service will be made of the highest eligibles who are residents of the State or group of States in which the vacancy exists, except that certification may be made of the highest eligibles from the entire country who have not expressed unwillingness to accept appointment where the vacancy exists, provided that satisfactory evidence is presented to the Commission showing that certification from the entire country will better meet the needs of the service. The department or office requesting certification of eligibles has the legal right to specify the sex desired.

Fingerprints.—Fingerprints will be taken of all persons appointed from these examinations.

Application forms. — The necessary forms may be obtained from the *Secretary, Board of United States Civil Service Examiners, at any first-class post office* (including the places listed hereon), from the United States Civil Service Commission, Washington, D. C., or from the *United States Civil Service district office* at any of the cities given below (the title of the examination desired should be stated):

Atlanta, Ga., New Post Office Building.
Boston, Mass., Post Office and Courthouse Building.
Chicago, Ill., New Post Office Building.
Cincinnati, Ohio, Old Post Office Building.
Denver, Colo., Post Office Building.
New Orleans, La., Customhouse.
New York, N. Y., Federal Building, Christopher Street.
Philadelphia, Pa., Old Post Office Building.
Seattle, Wash., Federal Office Building.
St. Louis, Mo., New U. S. Courthouse and Customhouse Building.
St. Paul, Minn., New Post Office Building.
San Francisco, Calif., 995 Market St.
Honolulu, T. H., Federal Building.
Balboa Heights, Canal Zone, *Secretary, United States Civil Service Board.*

San Juan, P. R., *Chairman, Puerto Rican Civil Service Commission.*

The Exact Title of the Examination Desired, as Given at the Head of This Announcement, Should Be Stated in the Application Form

Issued December 2, 1935.

Amendment to Announcement 1 *(Assembled) and to Form* 2279 *(Dec.* 16 *edition)*

UNITED STATES CIVIL SERVICE EXAMINATIONS

Chief Engineering Draftsman, $2,600 A Year

Principal Engineering Draftsman, $2,300 A Year

(For work on ships)

Optional Branches: Marine Engines and Boilers, Electrical (Ship), Hull.

Applications must be on file with the U. S. Civil Service Commission at Washington, D. C. not later than January 6, 1936

The examinations covered by Announcement 1 are to be held for the positions of Chief Engineering Draftsman (Hull) and Principal Engineering Draftsman (Hull). The optional branch "Hull" is hereby added to the optional branches appearing in original Announcement 1.

The paragraph headed "Additional requirements" is amended to read as follows (the amendment consists of the insertion of the word "hull"):

"*Additional Requirements.*—For the position of Principal Engineering Draftsman, applicants must show (a) that they have had at least 1 year of practical elementary drafting-room experience; or (b) that they have successfully completed a course of drafting requiring at least 400 hours of actual classroom work in a school specializing in drafting; or (c) that they have completed 1 year of an engineering or architectural course in a college or university of recognized standing; and, in addition to either (a), (b), or (c), that they have had, as a minimum, except for the substitution provided below, 4 years of progressively responsible electrical, mechanical, engines and boilers, or hull drafting experience, 2 years of which must be ship drafting experience consistent with the optional branch selected."

Issued December 13, 1935.

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS WASHINGTON, D. C.

BULLETIN No. 11—DECEMRER 10TH, 1935

ENGINEERS WANTED

Engineers — Building construction, apartments and small dwellings plans, specifications, construction and inspection of completed projects for alterations.

Only men having this type of experience need apply.

Applications of members "only" considered.

Write to Engr. W. S. Conlon, Executive Secretary, 1033 National Press Building, Washington, D. C.

PENNSYLVANIA

(Continued from page 16)

Engineers and aims to do engineering work, then objections are filed to the granting of the charter or registration. Under no circumstances can a charter be granted if the term "Engineering" is used in a sense that indicates that it is the desire to incorporate engineering as a profession.

Hence, the suggestion is made that the word "Engineer" or "Engineers" should only be used in a title when Registered Professional Engineers are in responsible charge of the engineering work done by the corporation.

The Pennsylvania Society also takes this opportunity of requesting the proper use of the word "Engineer" . . . . It should be used only to designate a Registered Professional Engineer. The Associated Press and the United Press have agreed to follow this practice and also have agreed to use the word "Operator" or "Engineman" for those operating mechanical equipment. For an excellent illustration see the case of Tallman vs. Reading Company, 117 Pa. Superior Ct. 148, wherein Judge Cunningham properly uses the word "Engineman" for the operator of a railroad locomotive."

(Signed) Samuel I. Sacks,
Director Penn. Society Prof. Engrs.

From the pen of A. C. Fisher, chairman Publications Committee comes the following:

Federal Civil Service

Recommendations in relation to qualifications to engineers for Civil Service examinations were forwarded to the United States Civil Service Commission at Washington through the offices of the Secretary of the National Society of Professional Engineers.

The principal suggestion was to the effect that the license of a registered professional engineer should be accepted as suitable evidence of the basic qualification of engineering training in lieu of the written examinations involved.

The Commission has asked Dr. White, one of its members, to make a special study of this matter with the cooperation of our national Secretary Engr. Willard S. Conlon.

A preliminary report has been received stating that some difficulty will have to be overcome due to the fact that of the thirty-five states having registration laws,

only fourteen are on a par or greater than the minimum number of years of responsible engineering training as recommended by the model registration law.

It is expected that this condition will not hamper the enactment of such regulations as will be satisfactory to the enhanced status of the professional engineer.

We are pleased to say that Pennsylvania is included among the states that have statutes comparing favorably with the model registration law.

Election of Officers

The following memorandum has been sent by the Executive Secretary to all of its members.

"The Constitution provides that the election of officers shall be made annually by plurality vote on individual letter ballots sent to all members of the State Society. A ballot is attached hereto so that you may have a voice in the selection of your officers for the coming year.

"The Executive Board, having felt that it would be inadvisable to attempt to hold an annual meeting this year, in the present formative stage of the society, has arranged to have official nominations as called for by the Constitution, prepared by a nominating committee consisting of two members from each of the Chapters under a non-voting coordinating chairman."

The official ballot for officers of the Pennsylvania Society of Professional Engineers for the calendar year 1936 is as follows:

President, S. M. Swaab, Philadelphia, Pa.; first vice-president, H. S. Mattemore, Harrisburg, Pa.; second vice-president, Chester F. Drake, Aspinwall, Pa.; director-at-large, Philip E. Stauffer, Wilkesbarre, Pa.; director-at-large, G. Edwin Pedcock, Allentown, Pa.

Members have the right to strike out any name which thereupon will not be counted, and add the name of any desired person to the ballot. The votes must be received at this office not later than Tuesday, December 31st, 1935, and will be canvassed on January 2, 1936.

READING CHAPTER

Plans for the organization of a chapter in Reading are being formulated for the evening of Thursday, December 19, 1935. The meeting place will be at the Bershire Hotel in Reading and all registered engineers who can be contacted will be asked to be present and hear about the possibilities of the society.

PITTSBURGH CHAPTER

The following is a draft of the letter which was sent by the Pittsburgh Chapter to the Mayor, members of City Council members of Allegheny County Commission and to the Secretary of the Planning Commission.

"The Commonwealth of Pennsylvania requires the Registration of Professional Engineers the same as members of the legal and the medical professions. Unfortunately, in Pennsylvania, the state has not set up any machinery for the enforcement of this act governing the practice of non-professional engineers.

"In order to aid this enforcement and to protect themselves, the registered professional engineers have formed the Pennsylvania Society of Professional Engineers with chapters in each county."

ALLEGHENY CHAPTER

In Allegheny County at the present time there are approximately one thousand engineers who are registered and have complied with the law and who feel that they are entitled to the same consideration as members of the legal and medical professions.

They, therefore, request your Honorable Body to establish, by proper legal regulations, that all employees of the county of Allegheny who are in responsible charge of design, supervision and construction of engineering work be required to hold a certificate issued by the State Registration Board for Professional Engineers of the Commonwealth of Pennsylvania.

PHILADELPHIA CHAPTER

The Philadelphia Chapter of Professional Engineers held its monthly meeting on Thursday, November 7, 1935, at the Engineers' Club in Philadelphia, having more than sixty members present.

Word was received from the Chief of the Bureau of Building Inspection that hereafter all the new forms of applications for obtaining building permits will include in the set-up the title of "Registered Engineer" among those of registered architect, builder and owner.

At the suggestion of the Philadelphia Chapter the Executive Board of the State Society of Pennsylvania decided to recommend to Governor George H. Earle, Jr., such candidates in our state organization as are qualified to fill the existing vacancies in the State Registration Board for Professional Engineers. This action was taken to establish a precedent in recommending such appointees, in the same manner that the Bar Association advocates its candidates for judgeship.

The speaker of the evening, Secretary Willard S. Conlon of the National Society was introduced to the Assembly by our state President, Major T. S. Battin with a short speech of welcome.

Engr. Conlon spoke of the hardships that were encountered in establishing the National Headquarters in Washington, D. C. Through untiring efforts, more recognition has been given to the professional engineer in a short space of time, than had been achieved in years of dormancy. Government engineers have organized the District of Columbia Society and the membership is growing rapidly.

The future of the professional engineer lies in a large membership banded together so that it can act as a unit. Political contacts and civic cooperation are essential to achieve our position in the public life.

Engr. Conlon's talk was very interesting and enlightening. It was appreciated by all and we hope to have him with us again in the near future.

Engr. R. C. Scott then presented the speaker with a check for a substantial sum, voluntarily subscribed by the members, as part of the fund promised to underwrite a deficit at the National Convention.

General discussion of interesting topics was conducted by Engrs. Battin, Blez, Finston and also Engr. Yundgt of the Allentown Chapter.

The next meeting and the first one in the new year will be held at the Engineers' Club in Philadelphia, on January 3rd, 1936, with Engr. S. M. Swaab, a nationally known consulting engineer as the guest speaker.

Season's Greetings

The Pennsylvania Society of Professional Engineers extends to all its members, and to all registered engineers, its best wishes for a "Happy And Prosperous New Year."

NEW YORK

Examining Board Elects Officers

At the 149th meeting of the New York State Board of Examiners for Professional Engineers, held in November, the following officers were elected for the coming year: Chairman, Dean Erich Hausmann (to succeed Dr. D. B. Steinman, who was chairman for the past two years); Vice-Chairman, Virgil M. Palmer (to succeed Dean Hausmann); Roy G. Finch (re-elected).

The Designation "Professional Engineer"

Mr. James O. Hoyle, Investigator for the Profession's State Education Department, recently gave it as his opinion that the State Board of Examiners of Professional Engineers and Land Surveyors alone has the right to confer the designation "Professional Engineer." Recipients of engineering degrees from educational institutions may enjoy the use of such titles except that they may not employ them in connection with professional practice until they have been duly licensed in the State.

State Society Activities

Engr. J. C. Riedel, President of the New York State Society has addressed communications to:

Hon. Charles J. Parker, Mayor of the Village of Oxford, requesting his cooperation in establishing provisions that licensed professional engineers be employed in the control and supervision of the flood protection work to be undertaken in the area within his jurisdiction.

State Department of Civil Service recommending that applicants for examination for the position of "Assistant Bridge Engineer" be required to possess professional engineering licenses, and that the expected rate of 80 cents an hour be increased to a level commensurate with the importance and obligations of the work to be performed in that position.

Hon. George McAneny, congratulating him upon his election as President of the World's Fair Corporation, and requesting that the services of licensed professional engineers be engaged in the engineering work of designing and constructing the various buildings and physical improvements required for the World's Fair enterprise in Queens County.

County Government

A letter from Senator Thomas C. Desmond, member of the Orange County Chapter, appeared in The New York Times of November 21st, 1935, stating his intention of introducing a bill on the opening day of the next legislative session containing a number of optional forms of government for counties outside of the City of New York and requesting that recommendations from persons having practical experience in county and township government be forwarded to him.

NEW LICENSES

Granted November 22nd, 1935

Allen, Austin O., 163 8th Ave., Sea Cliff, L. I.
Bainbridge, Edmund, 416 Ocean Ave., Brooklyn, N. Y.
Barden, William J., 1336 31st St., N. W., Washington, D. C.
Barnwell, Bower W., 411 W. 114th St., New York City.
Blood, Percy E., The Niagara Falls Power Co., Niagara Falls, N. Y.
Boas, Robert H., 412 Washington St., Reading, Pa.
Brodsky, Vladimir P., Rm. 1303-S, 4 Irving place, N. Y. C.
Brown, Mortimer C., 137 Summit Ave., Mt. Vernon, N. Y.
Burnell, Wm. V., Belmont, Mass.
Carhart, Frank M., Park Square Bldg., Boston, Mass.
Campbell, Aaron P., 412 Washington St., Reading, Pa.
Catherwood, Robert H., 222 Lisbon St., Buffalo, N. Y.
Collins, Walter F., 29 Montrose Rd., Scarsdale, N. Y.
Downing, Francis J., 115 Washington St., Buffalo, N. Y.
Duncan, Malcolm, 412 Washington St., Reading, Pa.
Fish, Alexander H., 846 Woodland Ave., Schenectady, N. Y.
Galvin, Samuel N., 895 Main St., Buffalo, N. Y.
Geenens, Leo, 111 8th Ave., N. Y. C.
Gies, Russell W., 37-20 81st St., Jackson Heights, L. I.
Greeley, Samuel, 6 N. Michigan Ave., Chicago, Ill.
Hagen, John F., 40 Argyle Rd., Brooklyn, N. Y.
Hah, Clifford A., 5911 Wellesley Ave., W. Pittsburgh, Pa.
Hammond, George O., 708 W. 171st St., N. Y. C.
Happold, Ernest L., 1451 Stanford St., Schenectady, N. Y.
Hawthorne, Robt. H., Niakayuna, N. Y.
Herter, Chas. H., 1128 Clay Ave., Bronx, N. Y.
Hutchinson, Henry H., DuPont Rayon Co., Station B., Buffalo, N. Y.
Hinkel, Edward J., 4001 A-201st St., Bayside, L. I.
Hoechel, Julius C., 387 Ocean Ave., Brooklyn, N. Y.
Holmes, Clarence R., Rm. 502, 80 Center St., N. Y. C.
Hotchkiss, William O., Rens. Polytech. Inst., Troy, N. Y.
Hutton, Paul D. 54 S Michigan Ave., Buffalo, N. Y.
Kreuger, Otto A., 606 S. Michigan Ave., Chicago, Ill.
Jones, Augustus, 1516 Jacob St., Troy, New York.
Kemp, Charles G. R., 1142 Fairview Ave., Wyomissing, Pa.
Langer, Jerome F., 1068 Park place, Brooklyn, N. Y.
Linch, Harry A., The Dorr Co., Inc., 247 Park Ave., N. Y. C.
Lynch, James H., Jr., 420 Lincoln Ave., Pompton Lakes, N. J.
Merwin, Theodore E., 5 Melrose Ave., Harmon on Hudson, N. Y.
Meyer, Delbert C., 463 West St., New York City.
*Mittag, Albert A., 211 Bloomfield St., Hoboken, N. J.
*Mombelly, Theodore, 3217 Hull Ave., Bronx, N. Y.
Morton, Robert B., 29 Fairfield St., Montclair, N. J.
*Murdichian, Karmy K., 1071 Fulton St., Brooklyn, N. Y.
Mutscheller, Arthur, 444 E. 57th St., N. Y. C.
Nash, Luther R., 90 Broad St. New York City.
Nichols, John R., 45 Newbury St., Boston, Mass.
*Olmsted, Clinton L., 208 W. 4th St., Oil City, Pa.
Pasfield, Wm A., 50 Park Ave., Babylon, L. I.
Patterson, Robert A., 184 Hodge Ave., Buffalo, N. Y.
Pollack, Selig, 3611 22nd St., L. I. City, N. Y.
Reid, Allen W., 412 Washington St., Reading, Pa.
Richardson, Harvey R., 1660 Madison Pl., Brooklyn, N. Y.
Ryan, Roger W., Rm. 2205 S., 4 Irving Pl., N. Y. C.
*Shultz, James M., 94 Lovering Ave., Buffalo, N. Y.
Stahre, Nils B., 245 96th St., Brooklyn, N. Y.
Tree, Russell T., 77 Brookside Ave., Caldwell, N. J.
Vittinghoff, Hans, Stone and Webster Engring Corp., 90 Broad St., N. Y. C.
*Walker, Lester H., 50 Birdsall St., Norwich, N. Y.
Weinstein, Alexander, 120 Broadway, N. Y. C.
Yeomans, Lucien I., 205 W. Wacker Drive, Chicago, Ill.

*Land Surveyor's Licenses.

CHAPTER NEWS

STEUBEN AREA

The approaching resumption of legislative activities in the State suggests a consideration of the following recommendations of the Steuben Area Chapter:

The requirement that all descriptions in deeds be verified by a licensed land surveyor before filing with the County Clerk.

The requirement that the County Superintendents of Highways be licensed professional engineers.

The requirement that Public Utility employees engaged in designing, planning and supervising engineering construction works be licensed professional engineers.

That adequate government funds be made available for a state-wide, engineering survey to devise improvements tending to decrease automobile accidents.

Engr. J. H. Adolph, Secretary of the Chapter, has been advised by Engr. D. B. Steinman, Chairman of the State Board of Examiners of Professional Engineers, that the Board has tentatively formulated the following definition of satisfactory experience of applicants for licenses:

"Experience in engineering work to be accepted as satisfactory to the Board must be of such grade and character as to require the intensive application of engineering principles and professional education in the practical solution of engineering principles. It must, moreover, be of such nature as to develop and mature the candidates' professional knowledge and engineering judgment."

WESTCHESTER COUNTY

On November 28th, 1935, Engr. Frazee L. Belknap, a member of the Chapter, Chief Engineer of the Department of Purchase and Secretary of the Board of Standardization of the City of New York, died suddenly. His passing is mourned by the Chapter and his associates in the profession.

Engr. Nicholas C. Penna, member of the Chapter, was a candidate for the office of Superintendent of Highways in the Town of Harrison at the last election; he was defeated, but made a splendid campaign.

RICHMOND COUNTY

The Chapter anticipates an early visit by Engr. D. B. Steinman, President of the National Society of Professional Engineers and Engr. Perry Ford, Secretary of the Ohio State Licensing Board. It is also keenly interested in matter of the acquisition of land looking forward to the erection of a permanent national headquarters.

ALBANY COUNTY

Engr. Robert C. Wheeler of Landonville was elected president at the November meeting of the Albany County Chapter. The following men were also elected to the respective offices indicated: Herman Fox Lame, vice-president; Saul D. Harvith, secretary-treasurer; George A. Teeling and Louis C. Hyatt, directors.

Engr. Enrique Touceda, professor emeritus of metallurgy at Rensselaer Polytechnic Institute and one of the country's foremost metallurgists discussed "Metallurgical Phases of Combinations in Modern Steels."

BRONX COUNTY

The Chapter will publicize its report on the subject of the Delaware River Water Supply for New York City.

Special committees have been appointed to report on: A bridge or tunnel across Long Island Sound between Ferry Point, Bronx, and Whitestone, Queens; A revised form of County Government; The Torren's Law.

The Chapter recorded its approval of a recommendation that a government appropriation be made for an engineering survey of electric light and power rates.

Plans are being inaugurated for an appropriate commemoration of the Tenth Anniversary of the founding of the Chapter—the first in New York State.

NIAGARA COUNTY

Mr. W. G. Soley, delivered a highly interesting address on "Freak Patents" at the Fall Opening Meeting of Niagara County Chapter.

DUTCHESS, ORANGE, ROCKLAND AND ULSTER COUNTIES

At the joint meeting of the Hudson Valley Chapters held on December 7, 1935, in Kingston, N. Y., it was decided that a meeting of chapter officers would be held on December 14, 1935, to formulate recommendations relative to proposed county home rule legislation for transmission to Senator Desmond.

Attention was called to announcements of State Civil Service examinations for Nurses and Evaluation Engineers; the requirement was made, in the first instance, that applicants be "Registered Nurses"; it was not required, in the second instance, that applicants be "Licensed Professional Engineers."

Engr. John C. Riedel, President of the New York State Society, the principal speaker, delivered a scholarly and stirring address on the necessity of the unified organization of professional engineers throughout the state and nation. Discussing the influences which have given rise to the creation of separate engineering organizations, Prof. Riedel related the interesting historical fact that Professor William Arnold Anthony, a graduate of the Sheffield School of Mines of Yale University in the middle of the last century,—who, while professor of Physics at Cornell University, constructed the first Gramme-Ring dynamo in the United States and made the campus at Cornell the first electrically lighted campus in America,—was refused membership in the American Society of Civil Engineers on the ground that, although the eminent in the then new field of electrical engineering, he was not a "Civil Engineer." This incident was shortly followed by the organization of the American Society of Electrical Engineers and the general practice of subdivisional engineering organization inaugurated.

The meeting was presided over by George W. Codwise, President of Ulster County Chapter. Among those present were Peter H. Bush, President of Orange County Chapter; Calvin T. Allison, President of Rockland County Chapter: Oscar A. D'Luhosch, former President of Dutchess County Chapter, representing Neil MacCoull, President of that Chapter.

CONNECTICUT

Plans First Annual Meeting

The first annual meeting of the Connecticut Society of Professional Engineers will take place on December 28, 1935, at Stamford.

Elaborate plans are in progress. The speakers for the occasion are to be Governor Wilbur L. Cross of Connecticut; Grover A. Whalen, former Police Commissioner of New York, and Engineers D. B. Steinman and Arthur V. Sheridan.

INFORMATION CIRCULAR

RULES AND REGULATIONS

Definitions, Rules and Regulations of the State Board of Registration for Professional Engineers and Land Surveyors

Preamble

In administering the Act and formulating its procedures, the Board recognizes two fundamental obligations:

1. To respect the right to his means of livelihood of any individual who has prepared himself conscientiously and properly to practice Professional Engineering and/or Land Surveying.

2. To protect the public as far as possible within the limits of the Act from such dangers, affecting life, safety, public health and property, as may arise from the attempt of incompetent or unethical persons to practice these professions.

Definitions

(a) The term "Act" shall refer to "An Act concerning the practice of Professional Engineering and Land Surveying," Senate Bill No. 728, Chapter 253, signed by the Governor of the State of Connecticut, June 13, 1935.

(b) The term "Board" shall mean the State Board of Registration for Professional Engineering and Land Surveyors.

(c) The term "Professional Engineer" shall mean a person who, by reason of his knowledge of mathematics, the physical sciences and the principles of engineering acquired by education and/or experience is qualified to engage in engineering practice as hereinafter defined.

(d) The Practice of Professional Engineering includes any professional service such as consultation, investigation, evaluation, planning, design, or responsible supervision of construction, in connection with any public or privately owned structures, buildings, machines, equipment, processes, works or projects wherein the public welfare or the safeguarding of life, public health or property is concerned or involved, when such professional service requires the application of engineering principles and data.

(e) The term "Land Surveyor" shall mean a person who engages in the practice of that branch of engineering commonly known as surveying and as hereinafter defined.

(f) The practice of Land Surveying means that branch of engineering and applied mathematics which includes the surveying and measuring the area of any portion of the earth's surface, the lengths and directions of the bounding lines, the contour of the surface, for their correct determination and description and for conveyancing or for recording, or for the establishment or reestablishment of land boundaries and the plotting of lands and subdivisions thereof; and like measurements and operations involved in the surveying of mines.

Rule 1—Registration

No person shall practice or offer to practice the profession of engineering in any of its branches, including land surveying, or use any title or description tending to convey the impression that he is a professional engineer or a land surveyor unless he shall have been duly registered or exempted under the provisions of the Act.

This provision becomes effective January 1, 1936.

Rule 2—Exemptions

Certain exemptions are granted in Section 9 of the Act, to:

(a) Employees and Subordinates of Registrants;

(b) Officers and Employees of Public Utility and Manufacturing Corporations;

(c) Officers and Employees of the Government of the United States;

(d) Non-residents of the State, limited to thirty (30) days in any calendar year;

(e) Recent Residents who have applied for Registration.

Those specifically exempt may apply for registration.

Rule 3—Application for Registration

Application for registration shall be made on forms furnished by the Board.

Applications may be made for registration as a Professional Engineer or a Land Surveyor or for both. Applicants for registration as a Professional Engineer should designate the branch in which they desire to qualify:

(a) Aeronautical
(b) Chemical
(c) Civil
(d) Electrical
(e) Heating and Ventilating
(f) Industrial
(g) Mechanical
(h) Metallurgical
(i) Mining
(j) Sanitary
(k) Structural

Additional branches or subdivisions thereof may be designated by the applicant. The Board may at its discretion designate the branches or subdivisions thereof in which it finds the applicant to be duly qualified.

Rule 4—Classes of Applicants

Each applicant shall designate the classification in the following schedule of minimum requirements, under which he makes application:

Professional Engineer

(1) Graduates of Engineering Schools (Section 3-a):

(a) With four (4) years of practice, or

(b) By examination;

(2) Non-graduates with eight (8) years of practice, by examination (Section 3-c);

(3) Applicants with ten (10) years of practice, five (5) in responsible charge. (Section 3-d); application period terminates December 31, 1940;

(4) Practitioners having had responsible charge of work of a character satisfactory to the Board (Section 6); application period terminates December 31, 1936;

(5) Registrants of other States (Section 11).

Land Surveyor

(6) Graduates of approved Schools (Section 3-b):

(a) With two (2) years of practice, or

(b) By examination;

(7) Non-graduates with six (6) years of practice, by examination (Section 3-c);

(8) Applicants with eight (8) years of practice, five (5) in responsible charge (Section 3-d); application period terminates December 31, 1940;

(9) Practitioners having had responsible charge of work of a character satisfactory to the Board (Section 6); application period terminates December 31, 1936;

(10) Registrants of other States (Section 11).

Rule 5—Application and Registration Fees

The schedule of fees is as follows:

Professional Engineer (Section 7—with application $5.00; for certificate $10.00; total $15.00.

Land Surveyor (Section 7)—with application $5.00; for certificate $5.00; total $10.00.

Professional Engineer and Land Surveyor (Section 7) — with application $10.00; for certificate $10.00; total $20.00.

"Reciprocal" (Section 11)—with application $10.00.

Annual Renewal, during December (Section 8)—with application $2.00.

Annual Renewal, after December 31—with application $3.00.

Replacement of lost:
(a) Certificate of Registration (Section 10)—with application $2.00.
(b) Certification Card—with application 50 cents.
Re-examination, (6) months (Section 4)—no charge.
A subsequent re-examination, $5.00.

Rule 6—Examinations

The Board may conduct examinations for securing such additional information as it may deem necessary in determining the qualifications of an applicant (except those who qualify under Section 6). Examinations shall be held semi-annually in January and July at such times and places as the Board shall announce thirty (30) days in advance. Additional examinations may be held at the discretion of the Board.

Examinations may be oral or written or partly oral and partly written. In certain examinations designated by the Board applicants may use books or reference material which shall be subject to inspection by the examiner and a list filed with the examination.

A candidate failing in an examination may apply within six (6) months, for re-examination at the expiration of six (6) months, and will be re-examined at the next regularly scheduled examination without payment of additional fee.

A candidate applying for re-examination after the expiration of six (6) months shall file a new application accompanied by the required fee.

The Board may at its discretion invite an applicant in any classification listed in Rule 4 to appear personally and give opportunity for discussion and consideration of his application.

Rule 7—References

Each application shall list the names of at least five (5) persons who can verify all or part of the information submitted by applicant. The Board may communicate with such references and at its discretion submit a copy of the record of the applicant. If after a reasonable time information requested from any reference has not been received, additional references may be required.

Rule 8—Rejection

A person whose application has been rejected shall be so notified. The Board shall upon request of the applicant advise the reasons for said rejection and applicant may then submit additional information or evidence for consideration by the Board. A rejected applicant will be given reasonable opportunity to secure reconsideration of his application.
(*To be Continued in January*, 1936 *Issue*)

PROPERTY EVALUATIONS

(*Continued from page* 15)

enlarge the scope of his work. He can do so by acquainting himself with the subject of appraisal study. He may offer his services to the public and can secure fees for his services. It is high time that the engineer should step away from the drafting board long enough to see some of the opportunities he has been missing, and by so doing to take advantage of a New Deal for himself.

THE SOCIETY'S INSIGNIA

(*Continued from page* 14)

be ordered through, and furnished by, the National Society.

It is to be noted that as the design recommended was prepared and developed by the committee, it is owned by the society which is under no restrictions regarding the securing of estimates, placing orders, etc.

The chairman of the committee acknowledges his appreciation of the splendid cooperation accorded by the members of the committee and particularly of that of Mr. Ernest F. Fox, chairman of the emblem committee of the New York State Society, who not only made designs himself but also secured the assistance of the artists who collaborated on the development of designs."

P.W.A. AND W.P.A.—PRESENT AND FUTURE

(*Continued from page* 13)

low-rent housing projects, with or without slum clearance, as local needs and conditions may warrant.

6. That Congress stipulate that in the expenditure of public works funds preference be given, not as heretofore under the W.P.A. to the maximum of employment directly on the job; but that modern machinery and labor-saving devices and the facilities of efficient contracting organizations be used wherever practicable, thus stimulating more widespread employment in the construction and durable goods industries.

With more than 9,000,000 workers still looking unsuccessfully for jobs in their normal occupations (9,196,000 on October 1, according to the estimate of the National Industrial Conference Board) the futility of expecting private industry or local governments to solve the problem during the coming fiscal year, without substantial Federal aid, is all too obvious.

TECHNOCRACY REVIEWED

(*Continued from page* 11)

the hydraulic plant when determining whether the change "pays." Quite logically in his method of figuring he says that if his books after the write-off still show the plant as worth, say, $100,000 it should be taken at that value. On the other hand, it is plain that whatever the book value of the plant is, it is irrelevant as far as defacto values go. The accountant might have used a different scheme of write-off and have obtained a higher or lower book value, yet the plant would be the same and do the same amount of work. The above method of estimating for replacements is consequently rejected in engineering economics. The accepted method of estimating replacements takes into account only the market value of the old plant, which market value is usually that of junk. The new plant necessarily must carry the indebtedness contracted at the erection of the old plant. Although we must admit that this way of figuring conforms entirely with present day business practice, our sound common sense accepts it only with a certain amount of head-shaking. What, we ask ourselves, if, after the erection of the second plant, a new invention comes along, which makes it economical again to change plants? If we were inventive enough (the solution of our economic ills according to some economists) we would be changing plants instead of doing the intended work, at each change making a more profitable investment,—in reality, however, piling up the debt burden which in the end could lead only to collapse. The case is in a way not unlike that of the merchant who sold a carload of nails at an enormous profit in marks, but was able to buy only a bagful of nails for the received money, which bagful again he sold at an enormous profit but was able to buy only one nail (on which he hanged himself). Both cases deal with inflation, only in different forms; the latter with currency inflation, the former with credit inflation.

Technocracy professes to solve this problem in a different way. It asks the question: Will there be a saving in the total amount of work if the replacement is made? This can be determined with mathematical accuracy. The objection can, of course, be made that the accepted method of estimating is aiming at the same thing as technocracy, only in an indirect way. That may be the aim, but it falls far short of it. The reason for this shortcoming is interest rate, an expected profit, and general uncertainty. Technocracy does not believe in interest and profit, and it does away with uncertainty by having a general plan. Instead of having a mounting credit structure which eventually causes the collapse of the system, technocracy has a mounting potential energy structure, eventually limited by nature and science, which is to be used for the raising of the collective standard of living. But overlooking even the effect of interest and profit, there is still an element of inaccuracy in our present method of figuring a replacement problem. We figure values in dollars, which unit is a variable. In our estimate, which naturally involves a lapse of time, we treat it as a constant. We cannot, therefore, arrive at a correct result. Technocracy, on the other hand, basing economics on science, borrows a unit from science. The unit of work, the erg, once arbitrarily established, remains the same as long as the stars stay on their courses. We need not worry beyond that.

A feature of technocracy somewhat better understood by the public is technological unemployment. There can be no sensible doubt in any thinking person's mind as to the replacement of man by the machine. That men, displaced by the machine, could be used in producing that machine is sheer nonsense, even if we consider the effect of training for the new kind of work. It seems that, as competition becomes keener, the cutting down of working hours in order to spread the work becomes more and more difficult. The financial superstructure cannot stand the strain. That is the reason why the necessary step for some sort of real recovery, the adoption of the thirty-hour week (or whatever might be required), has been dodged. In its stead, the half-way measures of the P.W.A. and other measures have been adopted in the vain hope of returning to the pre '29 era, notwithstanding the fact that the causes which led to the 1929 crash are still with us. While individual establishments may be running at the peak of efficiency, there is no scientific management for the country as a whole. Technocracy proposes that scientific management. Just as Super-Power would combine the power sources in the eastern states to obtain a larger load factor, so technocracy would for the entire North American continent. The saving would be reflected in shorter working hours.

THE
TULANE UNIVERSITY
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NEW ORLEANS

Technocracy, of course, would not destroy crops in order to create scarcity; it would not waste natural products, such as oil and metals, but would use them with an eye on the future; it would not hoard a useless metal, gold, and try to keep out the useful metals such as copper.

If we analyze more in detail the criticism which technocracy makes of our present system, that criticism appears to be well justified. The next logical step would be to see what technocracy has to offer. We see a scientific economic system as precise as a machine; a scientific standard of value, the erg; a whole continent working with a maximum load factor. We see man working only a few hours a day, only part of the year, and only a limited number of years. A very scientific and logical system, except that it is to be applied to an illogical world. We have no desire to contradict, we have only fears that it will not work as a machine. Will man, even if he has to work only four hours a day, not find even these four hours, after a while, an unbearable burden? Will man, by nature wishing to be free, not object to being made part of a relentless machine just for the sake of his material wants? Since in judging we have no past experience to fall back upon, we can make only a remote comparison with Soviet Russia where, if there is any truth in news reports, even after almost twenty years of communism drastic steps, unheard of in capitalistic countries, must be taken against economic sabotage. We can rest assured that man with his innate ingenuity for creating trouble will wreck even the most perfect economic system.

We may repeat then the question of the Chinaman who, after being shown around in the New York City subway system and being told how much time in traveling can be saved at the different junctions, asked: "What for?" Should we increase the sum total of human happiness if we were able to institute this economic machine? Human life, after all, is a mosaic of many variable values. None can be changed without affecting the aspect of the whole picture. Nobody has a right to claim that his composition of this mosaic gives the most perfect picture, although we must agree that in the end cultural, and not material, values will decide whether we shall live or not. A technocrat was once asked what people would do with their spare time; the answer was: make whoopee, if they like. That is what we are afraid of. Our own time's main distinguishing mark is the mad rush into nowhere. Technocracy would accentuate this rush and might indeed be the cause of the cultural downfall of the Western World.

Technocracy's chief merit is that it places economics on a scientific basis. Previous economic theories may be compared to a practical empirical formulas, intrinsically, dimensionally, wrong. As civilization progressed, these formulas became inapplicable. But, characteristically of human institutions, we always wait to find out the breaking strength before we make a change.

Even if we consider technocracy inapplicable, Howard Scott still stands out as a guide in economic thought. Money should be regarded as an exchange medium. The economic system should be run with the aim of maximum prosperity instead of maximum profit. The nearer we can approach technocracy, the nearer to perfection our economic system will be.

Technocracy's lack of appeal is that it is directed towards a very limited quantity—human intellect. It always has been the custom to banish prophets and then, from a perspective, write volumes on the decline and fall of empires.

Ed. Comment:

The above merits careful reading. The Editor ventures the opinion that no better philosophical approach to a social problem has appeared in any commentary of recent years.

THE CORPS OF ENGINEERS

(*Continued from page* 10)

acceptable to the Administration. The county had already spent some $55,000,000 on flood-control measures.

Los Angeles County Flood Control

The proposed work consists of some 14 inter-related sub-projects consisting mostly of improvements to channels. A number of spreading grounds are proposed, using the absorption qualities of the soil and gravel bed to carry the waters underground. The flood danger here has been largely the result of removing, by fire and cutting, of the forest covering in the nearby mountains permitting extremely rapid run-off. Also it seems the menace from mud flows is as serious as that from the actual water.

Sacramento River

This project was authorized by Congress in 1928 and thus antedates the P. W. A. and Emergency programs, although $1,500,000 of P. W. A. funds have been used recently. The work consists of levee constructions and channel improvements; mostly the latter. Local interests have contributed about $1,000,000 against $16,000,000 by the Federal Government.

New York and Pennsylvania Flood Control Survey

This work is being performed under an emergency allotment of $200,000. Needless to say the W.P.A. requirements imposing a man year cost of $1,140. and necessitating the use of 90% relief roll labor, have made certain methods necessary. It happened to be the duty of the writer to be in Washington preparing all applications for ERA funds to cover Army projects. When he presented this application to the Assistant Chief of Engineers, for approval and submission to the National Emergency Council, he remarked that it would be a difficult if not impossible assignment to live up to the schedule using relief labor. Two or three days later he was placed in charge of the proposed survey and is still wondering if there was any connection between the two incidents.

PUBLICITY FOR THE ENGINEER

(*Continued from page* 6)

Through the favorable attention which has been called to the profession in Pennsylvania as a result of the efforts to adjust the difference existing between architects and engineers.

Through the selection of Hon. J. F. Lynch, State Senator from West Haven, Connecticut, as a director of the N.S.P.E. This has focused some public attention on the ability and importance of engineers to fill such positions.

Through the exhibition of models and drawings of engineering work at the New York State Annual Meeting by governmental agencies, utility and transportation companies, educational institutions and engineering organizations.

Through the participation at annual meetings, particularly in Illinois and in New York, by outstanding representatives of governmental divisions as well as members of the engineering profession.

Through publicity appearing in the Washington, D. C. Press in connection with the appointment of Engineer M. L. Cooke to the position of Director of Rural Electrification.

Through a press release which appeared in whole or in part throughout the country in May concerning proposed rates of compensation for professional men in the multi-billion dollar works relief program. Much of the resulting nation-wide press comment was favorable to the stand taken by the N.S.P.E.

Through the accomplishment of a formidable campaign of ideas in Ohio including: (a) the publication of a schedule of fees, standard contracts, and a code of ethics by a state-wide committee, (b) the support of two desirable pieces of legislation respecting registration, which succeeded in passing, and the opposition to an undesirable piece of legislation respecting registration, which failed. One result has been to create a greater appreciation by the Ohio legislators and gubernatorial officials of the solidarity of the profession in Ohio.

Through the appointment by the Governor of Engineer Alexander Potter as a member of the Rockland-Westchester River Crossing Authority. This appointment has followed the activities of the state society in attempting to secure such action by the Governor.

Through the defense of the integrity of the engineering profession by the Westchester, New York, County Chapter in pointing out the illegality of applying the term "engineer" to the F.E.R.A. officials accused of the embezzlement of relief funds.

It is to be noted that the above list of accomplishments is far from complete. It is merely representative of the nation-wide activities in progress in connection with the advancement of public relations. It is to be expected that the coming year may show even greater accomplishments in this direction.

The following recommendations are offered as suggesting possible lines of advance towards the attainment of our objective:

I. The appointment of a Committee on Committees whose duty shall be to receive and digest monthly reports from various committee chairmen concerning committee accomplishments; and who shall encourage to greater activity those committees whose accomplishments are lagging behind the schedule set.

II. To prevail upon the executive officers of this Society to bring pressure upon Chapters and State Societies to participate in and to take the leadership in the promotion, support, and conduct of campaigns for the development of public works and other public affairs in which the engineer may be involved. The N.S.P.E. should be to Public Works what the A.P.H.A. (American Public Health Association) is to Public Health.

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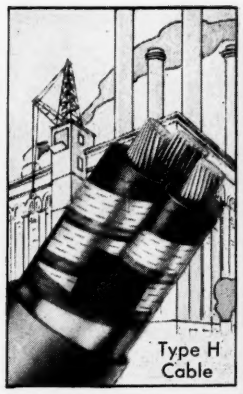
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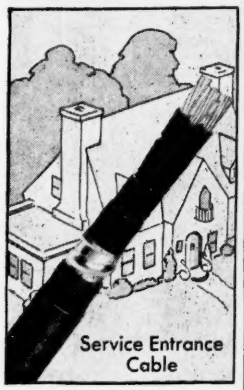
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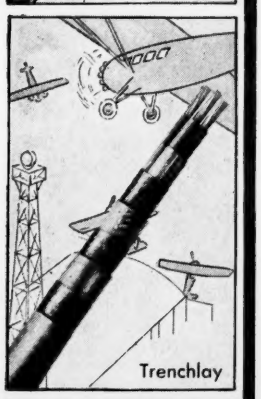
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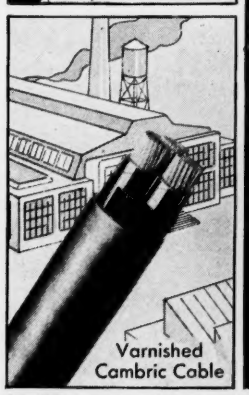
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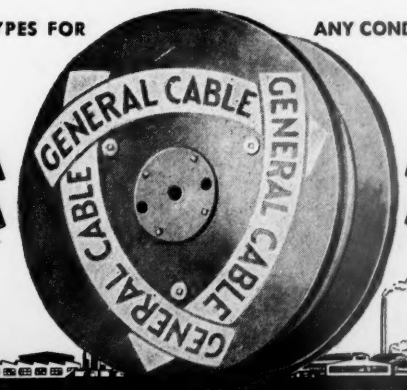

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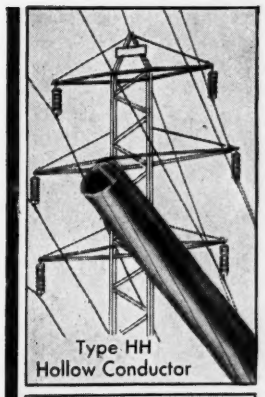
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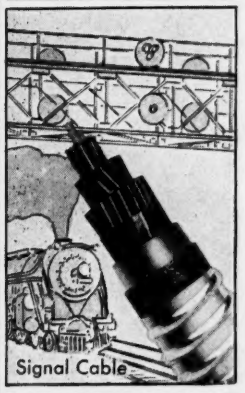
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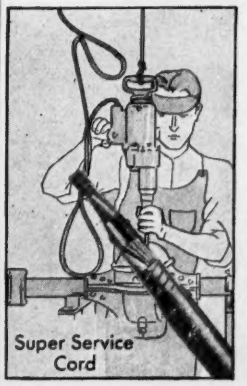
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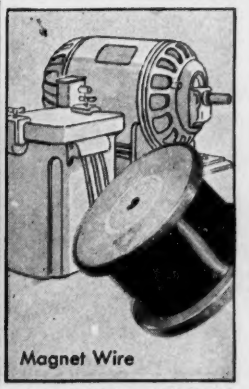
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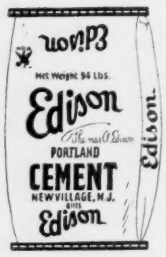

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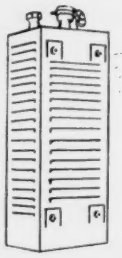

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